Health, Environment, or Economics: Framing of Food Production Labeling in Three Informational Contexts

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Abstract

Background: Mandatory Country of Origin Labeling (COOL) was introduced through the 2002 U.S. Farm Bill and requires U.S. grocery retailers to indicate the origin and for unprocessed fresh and frozen meat, seafood, produce, and other foods. Additionally, COOL requires grocers to distinguish fish and shellfish by their procurement method - whether farm-raised or wild-caught. Food origin labeling has salience across multiple dimensions. COOL may, for instance, impact economic vitality by guiding consumers to select products from certain countries over others. COOL may also have implications for public and environmental health by serving as a food safety or sustainability signal. The aims and objectives of mandatory COOL are broadly defined as to provide consumers with information about their food purchases. As such, the meaning and importance ascribed to the COOL, as well as the objectives of the labeling policy more generally, are subject to interpretation and influence from key stakeholders. Indeed, COOL has been a source of conflict between both domestic and foreign stakeholders. This research investigates the impact of this conflict on the framing of COOL. A particular focus of this body of research is the extent to which issues pertinent to human and ecological health are framed both at the point of purchase and in media coverage of the policy as being concert or in competition with marketing, economic, and political considerations in the implementation of COOL.

Aims: This research examines the framing of COOL across a variety of informational contexts. The aims of this work are threefold: 1) To define the relevance of COOL information in marketing seafood prior to and at the point of purchase, 2)

illustrate the salience of public health goals relative to economic or trade objectives in the framing of COOL policy aims in the international print news media, and 3) to assess public engagement with mandatory process labeling as a policy issue in the new participatory media.

Methods: This research consists of two phases. The first examines presentations of COOL for seafood prior to and at the point of purchase in Baltimore City grocery stores to determine the extent to which country of origin and procurement method were highlighted relative to other product information. 28 store visits were made to 16 stores located in Central, North, and East Baltimore. All seafood advertisements and labels from participating stores were included in the analysis. These data were coded according to the following criteria in order to assess the prominence of COOL: location of COOL relative to product or other advertisement features; use of color, changes in font. Descriptive statistics were performed to determine the prominence of co-occurrence of certain codes across the dataset while qualitative methods served to illuminate the nature and presentation of COOL in advertisements and in labels.

The second phase of research involves an investigation of the framing of COOL in print and online media. This phase consists of two distinct studies, the first of which is a cross-national comparison of the framing of COOL policy objectives in print news media from the U.S., Canada, and Mexico. The second of these studies examines blog posts and reader comments in the online participatory media to assess public engagement with COOL relative to another emerging process labeling policy: labeling for genetically modified foods. In both of these investigations, progressive theoretical sampling was used to identify and select relevant news articles and blog posts. The articles and blog

posts were then subjected to a thematic content analysis, exploring the relevance of public health in the framing of food labeling policy objectives and advocacy arguments, respectively. In analysis, each theme was assigned a code. The prevalence and co-occurrence of codes throughout the dataset, as well as the amount of coverage, were established through quantitative analysis. Qualitative methods explored the definitions, meanings, and presentations of the themes.

Main Findings: Together, the three studies comprising this work explore the framing of COOL and its relevance to public health and environmental aims across three different informational contexts. In each of the three studies, food safety emerged as a prominent frame and COOL was presented within two roles: as a food safety signal or as a traceability tool. In both functions, COOL was presented as a means for consumers to identify preferred foods and avoid those deemed to be unsafe. In labeling, advertising, and media presentations of COOL, domestic foods were favored over imported alternatives.

Significance: By shifting consumer demand and influencing market practices, food labeling policies broadly, and labeling for country of origin and processing method, in particular, can have a significant impact on human and environmental health, economic vitality, and trade relations. This work employs an innovative approach to examining the extent to which public health was highlighted in the framing of food labeling policy relative to economic concerns across varying informational contexts. The combination of mass media analysis with assessment of point of purchase presentations of COOL yielded a comprehensive profile of COOL within the larger information environment. This research contributes to the food systems literature by providing insight

into the societal, cultural, and environmental factors that influence the adoption of food labeling policy as a regulatory tool.

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Chapter 1: Introduction

In a complicated era of growing concern about food safety (Foulton, July 27, 2010) and environmental sustainability (Krosnick & MacInnis, 2010), food origin labeling has salience across multiple arenas. Introduced through the 2002 and 2008 Farm Bills, the U.S. enacted mandatory Country of Origin Labeling (COOL) to require grocers to label unprocessed seafood, produce, meat, and certain nuts, legumes, and spices with their origin. In addition, COOL for seafood requires labeling as to whether the product is farmed or wild-caught. COOL was adopted first for fish and shellfish in 2005 and expanded to all covered commodities in 2009. The goal of the policy is, broadly, to "inform consumers" about their food purchases (Agricultural Marketing Service, 2009). The law provides no additional description as to what information the label is intended to convey or why the label may be useful to consumers. Therefore, the meaning and importance ascribed to COOL are subject to interpretation, creating opportunity for stakeholders to compete to establish the conditions and aims of COOL.

Since its introduction, COOL has been a source of conflict between both domestic and foreign stakeholders. Proponents of the law include consumer health advocates who claim that COOL benefits shoppers through the provision of more detailed information about their food purchases. Opponents, such as meat processors and food marketers, have argued that the increased bureaucratic burden resulting from the record-keeping requirements under COOL could outweigh any advantage consumers may gain from mandatory origin labeling. COOL for meat has been central to the conflict surrounding implementation of the law. Most notably, Mexico and Canada – key partners in U.S. beef

production and trade - objected to the labeling law on the basis that it is protectionist and prejudices U.S. consumers against foreign meat. This argument formed the basis for a case brought to the World Trade Organization (WTO) in 2011. In a landmark ruling issued on November 18, 2011, the WTO ruled against COOL, declaring the program to be protectionist and in violation of global trade agreements (World Trade Organization, 18 November 2011). In response, the U.S. had the option to appeal the decision, dismantle the law, move to voluntary labeling, or maintain mandatory COOL as written while paying sanctions. In March 2012, the U.S. appealed the WTO ruling and was granted until May 2013 to either bring COOL into compliance or dismantle the program entirely. In fulfillment of these conditions, the USDA amended COOL to require that the labels indicate where each stage of production (e.g., slaughter, processing, packaging) occurred. Again, Canada and Mexico contested the law in August 2013 and requested the establishment of a compliance panel to determine if the final COOL requirements are in accordance with the WTO ruling. Depending on whether or not the case progresses, procedural timelines, and the outcome of the compliance ruling(s), the WTO investigation of COOL may not be resolved until 2015 (Jurenas & Greene, 2013).

This research investigates the extent to which issues pertinent to human and ecological health are framed in different informational contexts as being concert or in competition with marketing, economic, and political considerations in the implementation of COOL. Chapter 2 contextualizes this research within the broader sphere of food systems and media studies and provides a description of the background issues relevant to food production, labeling, and information seeking. In addition, Chapter 2 details the theory guiding this work.

Chapters 3 through 5 present original research exploring the framing of COOL across three informational contexts. Three independent studies investigate the framing of COOL as a marketing tool and as a policy instrument. This research consists of two phases: 1) an exploration of the presentation of COOL at the point of purchase as well as in store advertising; and 2) a content analysis of print news and online media coverage of COOL. Manuscript 1 (Chapter 3) focuses on the presentation and framing of COOL for seafood at the point of purchase as well as in store-based advertising. This study examines the extent to which origin and procurement information were highlighted in labeling and promotional materials. Findings from this study help to illustrate the relevance of COOL as a marketing tool for fish and shellfish.

Manuscript 2 (Chapter 4) expands the informational context under study to compare coverage of COOL in news media sources from the U.S., Canada, and Mexico. In this phase of the research, analytic attention shifts from the implementation and application of origin labeling to examine the conflict surrounding the definition of COOL as a policy, its aims and relevance to consumers. Particular attention is paid to the role of competing stakeholders in defining and framing the policy. This study demonstrates variations in framing by stakeholder interest, such that consumer advocates and U.S. governmental representatives most often framed COOL in terms of food safety while food industry professionals and representatives from Canadian and Mexican governments more commonly called positioned COOL within the context of marketing and trade objectives.

Manuscript 3 (Chapter 5) explores the salience and framing of COOL as a policy object in the online, participatory media. This study examines political blogs in order to

compare public engagement with and framing of COOL with that of a similarly controversial food labeling law – labeling for genetically modified organisms (GMO). The conclusions drawn from this investigation demonstrate support for mandatory process labeling. Advocates called upon food safety and informed choice arguments in framing arguments in favor of such policies. Those who opposed mandatory labeling laws countered these arguments to describe such policies as unscientific and of doubious utility.

Lastly, Chapter 6 ties together the main findings from each of the three studies comprising this research to make suggestions for future research and policy directions.

References

Agricultural Marketing Service (2009). Country of Origin Labeling (COOL) Frequently Asked Questions. Washington, D.C.

Foulton, A. (July 27, 2010). Most Americans Worry about Safety of Food Supply. National Public Radio. Washington, D.C.

Krosnick, J. A. and B. MacInnis (2010). Trends between 2008 and 2010 in American public opinion regarding whether the U.S. should take unilateral action on climate change. Stanford, CA, Stanford Woods Institute for the Environment.

Neff, R. A., C. L. Parker, et al. (2011). "Peak oil, food systems, and public health." American Journal of Public Health **101**(9): 1587-1597.

World Trade Organization (18 November 2011). United States - Certain Country of Origin Labelling (COOL) Requirements. WT/DS384/R WT/DS386/R. World Trade Organization.

Chapter 2: Background and Significance

2.1 The Global Food System: An Overview

The food system is integral to any discussion about public health nutrition, food safety, or environmental health. A food system includes all of the processes, stakeholders, and organizational structures involved in growing, harvesting, processing, packaging, distributing, marketing, consuming, and disposing of food. In addition, the food system encapsulates all of the inputs needed and outputs produced at each stage in the chain, from food production to consumption and disposal. In addition to the environmental/ecological context in which they are situated, food systems are shaped by social, political, and economic influences (Tansey & Worsley, 1996). The dominant food system model at present is the global, industrial model. Operating at an economy of scale, the industrial food system is designed to maximize efficiency in order to increase production and lower consumer costs. This requires homogenized inputs, standardized and technologized production practices, and a growing consumer base (Tansey & Worsley, 1996). In order to meet these requirements, the food system has increasingly become both centralized and globalized, such that farming has been concentrated in specific regions, requiring global transport of produce and livestock for processing, sale, and consumption. As a result, food is now a robust global trade (Roe et al., 2001).

2.1.1 Food System Risks to Public Health

While the industrial model food system has resulted in benefits such as a wider selection of food available at a lower cost, the concentrated nature of the industrial food

system also poses numerous risks to public and environmental health. Globalization, centralized production, and large-scale farming of both animals and produce, each create conditions that allow for quick and widespread dispersal of pathogens (Thompson, Sylvia, & Morrissey, 2005) (Hu & Willett, 2002). The ingestion of food contaminated by bacteria, fungi, parasites, viruses, toxins, or other harmful substances is a considerable threat to health in the United States (Shiferaw et al., 1998). More than 200 known diseases are transmitted through food, resulting in an estimated 13.8 million cases of food borne illnesses and 5,020 deaths each year in the United States (Mead et al., 2006). Concern has been heightened in light of recent outbreaks of pathogenic bacteria in meat and produce (United States Food and Drug Administration, 2012) and warnings about the potential toxicity of certain fish and shellfish (United States Food and Drug Administration, 2009). In addition, fears exist about the safety of developing technologies in food production, such as genetic modification of food animals and plants. New technologies are associated with novel risks, including potential toxicity, changes to the nutritional quality of foods, damage to organ systems, allergenicity, antibiotic resistance, and carcinogenicity (Artemis & Arvanitoyannis, 2008; Uzogara, 2000).

2.1.2 Food System Risks to Environmental Health

The globalized, industrial model food system poses a considerable threat to environmental health (Richardson, 2009). Largely based on the availability of inexpensive fossil fuels necessary for mechanized agriculture and food processing and transport, the food system is a significant source of greenhouse gas emissions and a chief contributor to global climate change (Intergovernmental Panel on Climate Change, 2007;

McMichael, Powles, Butler, & Uauy, 2007; Steinfeld et al., 2006). Further, in order to maintain its reliance on economies of scale, the industrial agricultural model requires heavy external inputs in the form of chemical fertilizers, pesticides, and herbicides as well as extensive use of prophylactic antibiotics, all of which pose a significant threat to local, regional, and even global ecological systems through nonpoint source pollution (Doos, 1994; Engels, Hansmann, & Sholz, 2010; Gleick, 1998; New York Times, 2011). Lastly, current methods of food production and harvest can lead to considerable species loss through genetic modification of crops (M. A. Garcia & Altieri, 2005; Wolfenbarger & Phifer, 2000), habitat fragmentation and loss (Kruess & Tscharntke, 1994; R. A. Neff, Parker, Kirshenmann, Tinch, & Lawrence, 2011), and intensive overfishing (Boris Worm, 2006; Jenkins, 2003; Pauly et al., 2003). Together, these stresses on ecological health and functioning demonstrate a considerable threat to the overall productivity, viability, and sustainability of the food system.

2.1.3 Managing Food Systems Risks

Food system-related threats to ecological and human health are largely managed through policy structures operating at the national level. Policies are in place to regulate the use of pesticides (Scheufele, 2006), mandate food safety inspections (Foulton, July 27, 2010), and ensure product traceability (United States Department of Agriculture, 2009). These interventions are designed to protect health at the population level; however, they are not fully effective. For this reason, education-based interventions, including food labeling policies, such as the U.S. Nutrition Facts Label, the National Organic Program, and the Country of Origin Labeling policy, have been put in place so

that consumers may be adequately informed about the nutritional quality and (to some extent) environmental impact of the foods they consume.

2.2 Communicating Food Risks to the Public

Effective communication about food risks is essential to protecting public health. Successful risk communication provides the public with trusted, reliable, and comprehensible information that can be used to guide the purchase of safe, healthy, and sustainable foods. However, disseminating information to the public about food risks is a particularly challenging exercise in risk communication. A key challenge lies in the centrality of food to human life and survival. We must all accept a certain level of risk because we cannot eschew food entirely in order to avoid exposure. Another challenge in communicating food risks lies in the vastness and complexity of the body of research underlying the characterization and understanding of any particular food-related risk. The profile of a particular food risk is typically incomplete and continually evolving. In contrast, messages about food risks are often over-simplified, undermining public trust in the product and its regulation (Leiss & Nicol, 2006). Lack of trust may then increase public perceptions of risk, making consumers vulnerable to misinformation and contributing to the uptake of unhealthful or otherwise damaging compensatory behaviors (Lang & Heasman, 2004). Therefore, nuanced messages about food risk are needed not only to convey valuable information to consumers, but also to promote nutritional integrity, as consumers may reject a food entirely if its safety is deemed suspect, potentially leading to nutritional deficits (Frewer, Howard, Hedderley, & Shepard, 1996a)

Information about food risks and benefits is communicated to the public through a variety of media. In the store environment, consumers receive information about their food through point-of-purchase labeling. Risks and benefits of certain foods are also communicated to a broad audience through the news media in the form of health and policy reporting. The lens through which such food and nutrition messages are interpreted is then shaped through social interactions. The public draws from this variety of information sources to form opinions about foods and their potential risks. Each of these sources conveys information to the consumer about the benefits and risks associated with a food product, and provides the consumer the opportunity to assess the nature, magnitude, and sources of risk.

2.3 Food Labeling as a Communication Tool

Information and communication are key to managing uncertainty and lessening worry about potential food safety risks (Roos, Dulsrud, & Norberg, 2004). With changes in technology for food production, processing, and distribution, the role of food labels has become increasingly important, particularly in light of increasing awareness about food borne illness, growing interest in nutrition, and concern over environmental health (Henneberry & Armbruster, 2003). Among other aims, food labels can help shoppers make safe and healthy decisions. Labels also serve to construct and identify valuable product characteristics, allowing shoppers to make choices that reflect both their preferences and values (Henneberry & Armbruster, 2003). From the governmental perspective, a key objective of food labeling is to influence individual food choices in reflection of broader social aims. For instance, labeling can be used to promote foods lower in salt and fat in order to promote a healthier society and lower healthcare costs

(Henneberry & Armbruster, 2003). Labeling may also be used to promote purchase of local or domestic food products, promoting local or national economic development (Giovannucci, 2010).

2.3.1 Food Labeling as a Regulatory Tool

Increasing consumer demand for healthier, safer, and more sustainable food has amplified the relevance of food labels as a consumer information tool in recent years. Credible labels identify otherwise undetectable product characteristics and can differentiate food on the basis of quality, safety, or production characteristics (McCluskey & Loureiro, 2003). Some research points to the possibility that food labels may play a role in improving food safety and quality by promoting market incentives to improve production practices (Caswell & Padberg, 2002). Food labeling can be required through state or federal policy, regulated through third-party oversight, or may be implemented voluntarily by producers, processors, or retailers. Frequently, a combination of these approaches is in place, though mandatory labeling is gaining prominence (Caswell, 1998a). Labeling policies may be used in place of more restrictive regulatory options or may be enacted in conjunction with other policies. In either case, labeling policies differ from other regulatory methods by responding directly to consumer demands to influence industry practices (Caswell, 1998a).

2.3.2 Public Responses to Food Labeling

Heightened awareness about food borne illness and growing concern about the environment has led to demands for safer, healthier, more traceable foods (Henneberry & Armbruster, 2003) and a growing number of people are considering process information in addition to price and quality when choosing food (Micheletti, 2003). Labeling can

impact consumer food choices, reduce perceptions of risk, encourage a healthier diet, and enhance confidence in the food system – all by identifying valued product characteristics. Recognizing that consumers will seek out products deemed to be safer or healthier, producers and retailers of seafood, in particular, have increasingly distinguished their products according to their country of origin, as well as nutritional and environmental characteristics (Mariojouls & Roheim, 2002).

2.3.3 Food Labeling and Credence Attributes

The role of point of purchase labels as a signal of food safety and quality is increasingly relevant in light of rapid changes in technology for food production, processing, and distribution, increasing globalization of the food system (Popkin, 2006), and growing uncertainty among consumers about food safety (Brewer & Rojas, 2008; Kriflik & Yeatman, 2005; S. Miles et al., 2004; Roe, et al., 2001). Indeed, safety, nutrition, production conditions, and ethical considerations are all important characteristics affecting perceptions about food quality (Henneberry & Armbruster, 2003; Wessells, 2002); however, these qualities can be difficult or impossible for consumers to judge. Labeling is often used to deliver information to consumers about product attributes that they are otherwise unable to evaluate. Economists define this type of characteristic as a credence attribute (Caswell & Mojduszka, 1996; M. R. Darby & Karni, 1971). Labeling can transform these credence attributes into identifiable, searchable traits (Caswell, 1998b; Henneberry & Armbruster, 2003).

Process attributes, a particular kind of credence characteristic, include a product's origin(s) and production methods. These characteristics are a relevant consideration for those concerned about the impact of food production on the environment, worker safety,

animal welfare, and/or food safety (Caswell & Padberg, 2002). Few policies require disclosure of process attributes on product labeling; however, consumer advocates have been successful in bringing about mandatory labeling for certain production characteristics, such as that for organic or irradiated food.

2.3.4 Country of Origin Labeling

Country of Origin Labeling (COOL) is one example of a federally-mandated policy that requires labeling for process attributes. Introduced through the 2002 Farm Bill, COOL requires retailers to label unprocessed meat, poultry, seafood, produce, and certain nuts and legumes as to their origin. For fish and shellfish, the label must further distinguish between farm-raised or wild-caught options (United States Department of Agriculture, 2009). The term "farm-raised" refers to products that are hatched, raised, and harvested in captivity where the term "wild" describes fish and shellfish harvested in the wild (Agricultural Marketing Service, 2009). Only full grocers, whose profits on produce exceed $230,000 annually, are subject to COOL, thus excluding butcher shops, fish markets, corner stores, as well as many small grocers and specialty markets (Agricultural Marketing Service, 2009). COOL was first implemented for seafood in 2005. Following much debate between politicians, food industry representatives, consumer interest groups, COOL was extended to produce and meat in 2009 (Agricultural Marketing Service, 2009). The debate over the form and implementation of COOL continues. In 2008, U.S. trade partners, Mexico and Canada, challenged COOL through the World Trade Organization (WTO). The WTO ruled against the U.S. in November 2011, claiming the law to be protectionist and in violation of international trade agreements. The response to the ruling has not yet been determined. The U.S. may maintain the law in it current form

while paying sanctions, alter the law to adhere to trade conditions, or dismantle the law (World Trade Organization, 18 November 2011).

In 2013, the U.S. imported 32,156 tons of meat, seafood, produce, and nuts, a number that has steadily increased over the past fifteen years (United States Department of Agriculture, 2013). Indeed, food is a global business. Between eight and ten percent of the beef and pork consumed in the U.S. is imported. Up to fourteen percent of beef, and nearly forty percent of pork raised domestically is exported to other countries (United States Department of Agriculture, 2013, 2014). Additionally, nearly 84 percent of the fish and shellfish consumed in the U.S. was caught in foreign waters and at least half of the seafood imported to the U.S. is farmed (Food and Agriculture Organization of the United Nations, 2006b). In light of worries about food safety breaches, outbreaks of food borne illness, and the impact of farming practices on public and environmental health, COOL has the potential to serve as a safety and quality signal. In doing so, COOL has relevance to economic interests, public health considerations, as well as ecological functioning.

Initial studies examining consumer reactions to country of origin-labeled beef and pork suggested that grocery shoppers prefer (S. Miles, et al., 2004) and would pay more for U.S.-labeled meat (Brewer & Rojas, 2008; Hobbs, 2003; Umberger, Feuz, Calkins, & Sitz, 2003). Food safety concerns, a desire to support U.S. producers, beliefs that U.S. meat was of higher quality (Umberger, et al., 2003), and traceability were most often cited as the main motivations behind willingness to pay (Hobbs, 2003). Studies examining consumer preferences for seafood demonstrate that a majority of shoppers read the package label when buying fish (Bennet, 2003) and feel that location or origin of production labels are important decision aids (Bennet, 2003; O'Dierno, Govindasamy,

Puduri, Myers, & Islam, 2006). A 2006 study investigated consumer reactions to COOL for seafood and found that a vast majority (82%) of respondents indicated that they believed COOL would be useful, with two thirds agreeing that the label would influence their purchase decision.

2.3.5 The Mass Media as a Consumer Information Source

The public identifies the news media as a reliable source of information about food safety, with many ranking the media as their primary source of information related to food and diet (Osher & Belmaker, 2009). Of particular importance is the role of the news media in raising awareness about potential risks to public health. Looking back over the past two years, several important food-related risks were made visible through news reporting, including the contamination of beef (Moss, 2009), peanut butter (United States Department of Commerce, 2010), and eggs (Genius & Schwalfenberg, 2006; Laestadius, Lagasse, Smith, & Neff, 2012). Increasing knowledge about risk through news reporting may influence individual and public responses to public health risk, such as worry, avoidance, or increased regulation (Johnson & Tversky, 1983; Mazur, 1981; Ryan, Dunwoody, & Tankard, 1991).

In addition to increasing knowledge and awareness about a particular risk, the media shape how risks are perceived. Journalists tend to emphasize hazards that are novel, serious, and relatively rare (Adams, 1992-1993), characteristics which describe both acute incidents of food borne illness, as well as delayed outcomes resulting from long-term consumption of toxins in food. Further, health news reporting can be alarmist, heightening concern about a potential risk when such concern is not warranted or dwelling on the most frightening aspects of a hazard rather than disseminating

information about risk reduction (Hayes & Grossman, 2006; Ryan, et al., 1991; Sandman, Sachsman, Greenberg, & Gochfeld, 1987). Several studies exploring the nature of news coverage related to seafood consumption found reports to emphasize risks over benefits (Amberg & Hall, 2008; Greiner, Smith, & Guallar, 2010; Schupp & Gillespie, 2001). Further, Amberg and Hall (2008) found that severe, frightful, and personal risks, such as cancer and birth defects, received more coverage than more distal risks like those to the environment (Amberg & Hall, 2008). While the news media provides a valuable service by informing the public of potential food risks, the emphasis on severe and acute risks may obscure the true risk profile for many foods thus misguiding consumer efforts to protect themselves and their families from harm.

Lastly, risk rhetoric reflects and reinforces the dominant power structures, framing or reframing the nature and origins of a particular risk (Beck, 1986). As outlined earlier, the food system has a critical impact on environmental health (Richardson, 2009). The news media has the potential to bring attention to the impact of the food system on ecological health, particularly the consequences of irresponsible seafood farming and harvesting practices; however, the connections between health risks and dangers to the environment resulting from food production and distribution practices have not been found to be adequately addressed in the news media (R. Neff, Chan, & Smith, 2008).

Through awareness raising and message framing, the media play a critical role in shaping what consumers think about a particular food source and their decisions about what to eat and how much. The media may work in concert with labeling efforts, explaining to customers the meaning of food labels – both implicit and explicit – and shaping their perceived utility as an information source or decision guide. Consumer

receptivity to media messages about food and food labeling may, first, depend on the sociocultural context in which the individual resides as experiential and collective knowledge may supersede outside information sources.

References

Adams, W. C. (1992-1993). The role of media relations in risk communication. *Public Relations Quarterly, Winter 1992-1993*, 28-32.

Agricultural Marketing Service. (2009). Country of Origin Labeling (COOL) Frequently Asked Questions. Washington, D.C.

Amberg, S. M., & Hall, T. E. (2008). Communicating risks and benefits of aquaculture: a content analysis of US newsprint representations of farmed salmon. *Journal of the World Aquaculture Society, 39*(2), 143-157.

Artemis, D., & Arvanitoyannis, I. S. (2008). Health risks of genetically modified foods. *Critical Reviews in Food Science and Nutrition 49*(2), 164-175.

Beck, U. (1986). *Risk Society: Towards a New Modernity*. London: Sage.

Bennet, B. S. (2003). consumer preferences for genetically modified fish and seafood: An econometric approach *Thesis, Master of Science in Agricultural and Resource Economics*: Davis College of Agriculture, Forestry, and Consumer Sciences at West Virginia University.

Boris Worm, E. B. B., 2 Nicola Beaumont,3 J. Emmett Duffy,4 Carl Folke,5,6 Benjamin S. Halpern,7 Jeremy B. C. Jackson,8,9 Heike K. Lotze,1 Fiorenza Micheli,10 Stephen R. Palumbi,10 Enric Sala,8 Kimberley A. Selkoe,7 John J. Stachowicz,11 Reg Watson12 (2006). Impacts of biodiversity loss on ocean ecosystem services. *Science, 314*(5800), 787-790.

Brewer, M. S., & Rojas, M. (2008). Consumer Attitudes toward issues in food safety *Journal of Food Safety, 28*(1), 1-22.

Caswell, J. A. (1998a). How labeling of safety and process attributes affects markets for food. *Agricultural and Resource Economics Review, 27*(2), 151-158.

Caswell, J. A. (1998b). Valuing the benefits and costs of improved food safety and nutrition *The Australian Journal of Agricultural and Resource Economics, 42*, 409-424.

Caswell, J. A., & Mojduszka, E. M. (1996). Using informational labeling to influence the market for quality in food products (Vol. NE-165 Working Paper No. 43). Storrs, CT.

Caswell, J. A., & Padberg, D. I. (2002). Toward a More Comprehensive Theory of Food Labels. *American Journal of Agricultural Economics, 74*(2), 460-468.

Darby, M. R., & Karni, E. (1971). Free competition and the optimal amount of fraud. *Journal of Law and Economics, 16*(67-88).

Doos, B. R. (1994). Environmental degredation, global food production, and risk for large-scale migrations. *Ambio, 23*(2), 124-130.

Engels, S. V., Hansmann, R., & Sholz, R. W. (2010). Toward a sustainability label for food products: An analysis of experts' and consumers' acceptance. *Ecology of Food and Nutrition 49*(1), 30-60.

Food and Agriculture Organization of the United Nations. (2006). The state of the world's fisheries and aquaculture. Rome, Italy.

Foulton, A. (July 27, 2010). Most Americans Worry about Safety of Food Supply, *National Public Radio*. Retrieved from http://www.npr.org/blogs/health/2011/06/07/128794927/most-americans-worry-about-safety-of-food-supply

Frewer, L. J., Howard, C., Hedderley, D., & Shepard, R. (1996). What determines trust in information about food risks? Underlying psychological constructs. *Risk Analysis, 16*(473-86).

Garcia, M. A., & Altieri, M. A. (2005). Transgenic crops: implications for biodiversity and sustainable agriculture. *Bulletin of Science and Technology Society, 25*(4), 335-353.

Genius, S. J., & Schwalfenberg, G. K. (2006). Time for an oil check: The role of essential omega-3 fatty acids in maternal and pediatric health. *Journal of Perinatology 26*, 359-365.

Gleick, P. H. (1998). Water in crisis. *Ecological Applications, 8*(3), 571-579.

Greiner, A., Smith, K. C., & Guallar, E. (2010). Something fishy? News media presentation of complex health issues related to fish consumption guidelines. *Public Health Nutrition 13*(11), 1786-1794.

Hayes, R., & Grossman, D. (2006). *A scientist's guide to talking with the media: practical advice from the Union of Concerned Scientists*. New York, NY: Rutgers University Press.

Henneberry, S. R., & Armbruster, W. J. (2003). Emerging roles for food labels: inform, protect, persuade. *Journal of Food Distribution Research, 34*(3), 62-69.

Hobbs, J. E. (2003). *Traceability and Country of Origin Labeling*. Paper presented at the Policy Dispute Information Consortium: 9th Agricultural and Food Policy Information Workshop, Montreal.

Hu, F. B., & Willett, W. C. (2002). Optimal diets for prevention of coronary heart disease. *Journal of the American Dietetic Association, 288*, 2569-2578.

Intergovernmental Panel on Climate Change. (2007). Climate Change 2007: Synthesis Report. New York, NY.

Jenkins, M. (2003). Prospects for biodiversity. *Science, 302*(5648), 1175-1177.

Johnson, E. J., & Tversky, A. (1983). Affect, generalization and the perception of risk. *Journal of Personality and Social Psychology, 45*, 20-31.

Kriflik, L., & Yeatman, H. (2005). Food scares and sustainability: A consumer perspective. *Ecology of Food and Nutrition, 7*(1), 11-24.

Kruess, A., & Tscharntke, T. (1994). Habitat fragmentation, species loss, and biological control. *Science, 264*(5165), 1581-1584.

Laestadius, L. I., Lagasse, L. P., Smith, K. C., & Neff, R. A. (2012). Print news coverage of the 2010 Iowa egg recall: Addressing bad eggs and poor oversight. *(Under review at Food Policy)*.

Lang, T., & Heasman, M. (2004). *The Food Wars: Public Helath and the Battle for Mouths, Minds, and Markets*. London: Earthscan Publication.

Leiss, W., & Nicol, A. (2006). A tale of two food risks: BSE and farmed salmon in Canada. *Journal of Risk Research, 9*(8), 891-910.

Mariojouls, C., & Roheim, C. A. (2002). Certification and quality signals in the aquaculture sector in France *Marine Resource Economics, 17*, 175-180.

Mazur, A. (1981). Media coverage and public opinion on scientific controversies. *Journal of Communication, 31*, 106-115.

McCluskey, J. J., & Loureiro, M. L. (2003). Consumer preferences and willingness to pay for food labeling: A discussion of empirical studies. *Journal of Food Distribution Research, 34*(3), 95-102.

McMichael, A. J., Powles, J. W., Butler, C. D., & Uauy, R. (2007). Food, food production, energy, climate change, and health. *Lancet, 370*(Series on Energy and Healthy, #5), 55-65.

Mead, P. S., Slutsker, L., Dietz, V., McCaig, L. F., Bresee, J. S., Shapiro, C., Tauxe, R. V. (2006). Food-Related Illness and Death in the United States Source: Centers for Disease Control and Prevention.

Micheletti, M. (2003). *Political virtue and shopping: individuals, consumerism, and collective action*. New York: Palgrave Macmillan.

Miles, S., Brennan, M., Kuznesof, S., Ness, M., Ritson, C., & Frewer, L. J. (2004). Public worry about specific food safety issues. *British Food Journal, 106*(1), 9-22.

Moss, M. (2009). E.Coli Path Shows Flaws in Beef Inspection, *New York Times*.

Neff, R., Chan, I. L., & Smith, K. C. (2008). Yesterday's dinner, tomorrow's weather, today's news? US newspaper coverage of food system contributions to climate change. *Public Health Nutrition*.

Neff, R. A., Parker, C. L., Kirshenmann, F. L., Tinch, J., & Lawrence, R. S. (2011). Peak oil, food systems, and public health. *American Journal of Public Health, 101*(9), 1587-1597.

New York Times. (2011). Japan Nuclear Crisis *Times Topics: Japan*.

O'Dierno, L. J., Govindasamy, R., Puduri, V., Myers, J. J., & Islam, S. (2006). Consumer perceptions and preferences for oganic aquatic products: results from the telephone survey: New Jersey Agricultural Experiment Station

Osher, Y., & Belmaker, R. H. (2009). Omega-3 fatty acids in depression: A review of three studies. *CNS Neuroscience and Therapy, 15*, 128-133.

Pauly, D., Alder, J., Bennett, E., Christensen, V., Tyedmers, P., & Watson, R. (2003). The Future of Fisheries. *Science, 302*(5649), 1359-1361.

Popkin, B. M. (2006). Technology, transport, globalization and the nutrition transition food policy. *Food Policy 31*(6), 554-569.

Richardson, J. (2009). *Recipe for America: Why Our Food System is Broken and What we can do to Fix it*. Brooklyn, NY: Ig Publishing.

Roe, B., Teisi, M. F., Levy, A. S., Boyle, K., Messonnier, M. L., Riggs, T. L., . . . Newman, F. M. (2001). Consumers' assessment of the food safety problem for meals prepared at home and recations to food safety labeling. *Journal of Food Products Marketing, 6*(4), 9-26.

Roos, G., Dulsrud, A., & Norberg, H. M. (2004). *The meaning of information on traceability of fish for establishment of consumer trust*. Paper presented at the Political Consumerism: its motivations, power, and conditions in the Nordic countries and elsewhere. Proceedings from the 2nd International Seminar on Political Consumerism, Oslo, Norway.

Ryan, M., Dunwoody, S., & Tankard, J. (1991). Risk information for public consumption: print media coverage of two risky situations. *Health Education Quarterly, 18*(3), 375-390.

Sandman, P., Sachsman, D., Greenberg, M., & Gochfeld, M. (1987). *Environmental risk and the press: an exploratory assessment*. New Brunswich, NJ: Transaction Books.

Scheufele, D. A. (2006). Framing as a theory of media effects. *Journal of Communication, 49*, 109-122.

Schupp, A., & Gillespie, J. (2001). Consumer attitudes towards potential country-of-origin labeling for fresh or frozen beef. *Journal of Food Distribution Research, 32*(3), 34-44.

Shiferaw, B., Cieslak, P., The Foodnet Working Group, Yang, S., Angulo, F., Vugia, D., Deneen, B. (1998). Prevalence of High-Risk Food Consumption and Food-Handling Practices among Adults: A Multistate Survey, 1996 to 1997. *Journal of Food Protection 63*(11), 1538-1543.

Steinfeld, H., Gerber, P., Wassenaar, T., Castel, V., Rosales, M., & Haan, C. (2006). Livestock's Long Shadow: Environmental Issues and Options. *Rome, FAO*.

Tansey, G., & Worsley, T. (1996). *The food system, a gudi*. London: Earthscan.

Thompson, M., Sylvia, G., & Morrissey, M. T. (2005). Seafood traceability in the United States: current trends, system design, and potential applications. *Comprehensive Reviews in Food Science and Food Safety, 1*, 1-7.

Umberger, W. J., Feuz, D. M., Calkins, C. R., & Sitz, B. M. (2003). *County-of-Origin Labeling of Beef Products: U.S. Consumers' Perceptions*. Paper presented at the Emerging Roles for Food Labels: Inform, Protect, Persuade, Washington, D.C.

United States Department of Agriculture. (2009). Mandatory County of Origin Labeling of Beef, Pork, Lamb, Chicken, Goat Meat, Wild and Farm-Raised Fish and Shellfish, Perishable Agricultural Commodities, Peanuts, Pecans, Ginseng, and Macadamia Nuts; Final Rule *Federal Register* (Vol. 7). Washington, D.C.: National Archives and Records Administration.

United States Department of Agriculture. (2013). Volume of U.S. food imports, by food group. In United States Department of Commerce (Ed.). Washington, D.C.

United States Department of Agriculture. (2014). Hogs and Pork Trade Retrieved March 21, 2014, from http://www.ers.usda.gov/topics/animal-products/hogs-pork/trade.aspx - exports

United States Department of Commerce. (2010). U.S. seafood consumption declines slightly in 2009. Washington, D.C.: National Oceanic and Atmospheric Administration.

United States Food and Drug Administration. (2009). Retrieved November 29, 2009, from http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/default.htm

United States Food and Drug Administration. (2012). Recalls, Market Withdrawals, and Safety Alerts Retrieved April 4, 2012, 2012, from http://www.fda.gov/safety/recalls/default.htm

Uzogara, S. G. (2000). The impact of genetic modification of human foods in the 21st century: A review. *Biotechnology Advances, 18*(3), 179-206.

Wessells, C. R. (2002). The economics of information: markets for seafood attributes. *Marine Resource Economics, 17*, 153-162.

Wolfenbarger, L. L., & Phifer, P. R. (2000). The ecological risks and benefits of genetically engineered plants. *Science, 290*(5499), 2088-2093.

United States - Certain Country of Origin Labelling (COOL) Requirements (18 November 2011).

Chapter 3: Theoretical Perspectives

3.1 The Risk Society

The term "risk society" describes the predominance of a risk perspective in defining most issues in modern society. German sociologist, Ulrich Beck, defines the risk society as being built around systematic measures for dealing with the hazards and anxieties introduced by the processes of modernization, specifically those linked to urbanization and industrial production (Beck, 1986). While humans have always been subjected to risk through natural disasters and related phenomena, these have been perceived to result from organic processes, lacking human input or manipulation. Modern societies, however, are characterized by risks, such as pollution and chemical exposure, originating from human actions. The government holds a chief role in the risk society, driving modernization and thus defining what are acceptable risks, as well as shaping options for risk management and mitigation (Beck, 1986).

Beck explains that no member of modern society is free from risk, as industrial risks are transferred through a multitude of pathways and are diffused throughout the environment (Beck, 1986). These pathways include occupational exposure, ambient inhalation, or ingestion through food and water. The ability to mitigate one's exposure, therefore, has as much to do with knowledge as it does with economic resources. Exposure to risk, and the consequent development of negative health outcomes, varies to some degree along traditional class lines, with a greater burden experienced among those of low socioeconomic position (Beck, 1986). While those in positions of power may have better access to resources that enable them to avert risk, this first requires an awareness of

the risk and commensurate mitigation and aversion strategies. For this reason, risk communication is an essential element of information justice, allowing all members of society, particularly equal access to information about sources of health risk and strategies to avert exposure.

The media play a central role in delivering information and defining the risk society (Beck, 1986). As discussed in greater detail earlier in this paper, the mass media play a central role in distributing information about risk events such as environmental contamination (J. D. Brown & Walsh, 2002). In doing so, the mass media is also a key site for the social construction and "social contestation" of risks (Cottle, 1998). The way in which risk events are discussed in the news media serves to frame - or reframe - public understanding of the nature of modern risks, identifying the sources of risk, naming the responsible parties, and classifying response options (Beck, 1986). In this role, the media refine the rhetoric of risk, either reinforcing or refuting the dominant ideologies about what is an acceptable risk as well as what are appropriate and viable risk management strategies.

This work situates COOL within the risk society. Food risks are largely rooted in modern industrial practices. Intensive farming, cross-national trade, and mass processing of meat and produce all provide numerous opportunities for the introduction of bacteria and other pathogens on a massive scale. Of particular interest in this work is the extent to which COOL is identified as a risk management strategy and for which types of risks (health and/or environmental). In addition, through an analysis of discussions of COOL in the new media, this study seeks to explore public engagement with COOL as a

regulatory tool aimed at reducing food risks. These aims reflect the prioritization of knowledge in the risk society as a tool for maintaining health and minimizing exposure to risks.

3.2 Social Construction of Quality

Social construction describes the process by which the meanings of events, objects, and conditions are formed and modified through social interactions. Specifically, symbols and actions are co-interpreted to form a shared understanding. Meanings, therefore, do not represent a single, knowable and static truth, but may shift over time and vary according to the influence of different dominant actors. Indeed, the social construction of reality is a continuous process, which must be reproduced and reaffirmed through people acting on their interpretations. Individual reactions to events, objects, and conditions are then directed by the meanings attributed to them across the larger society (Blumer, 1962).

A central aim of research conducted under the social constructionist perspective is to uncover the ways in which individuals and groups participate in and/or act on the construction of specific social facts or how social conditions contribute to the creation of specific "facts." Of particular interest is the social establishment and interpretation of symbols as signals for intangible attributes. Consider, for example, the study of how the concept of "quality" as it relates to food is socially defined. Defining "quality" for food is a complicated social process that occurs through interactions across different levels of the food system (Cabello, 2006; Mergler et al., 2007; Valentino, Torregrossa, & Saliba, 1995). Previous research suggests four key perspectives through which quality appraisals are made, each placed within a specific context: 1) market-based; 2) industry-based, 3)

place-based, or 4) civic-based (K. Darby, Batte, Ernst, & Roe, 2008). In each of these contexts, the construction of quality is shaped through the actions and interactions of a unique set of stakeholders, resulting in varying indicators of quality and value.

Under the market-based perspective quality is determined through collective interpretations of price, such that high cost signals better quality. Critical actors in shaping this perspective are consumers, producers, and retailers. Producers also play a key role in the shaping the industry-based perspective. In this perspective, quality is defined in terms of physical characteristics, with uniformity and standardization signaling higher quality. Conflicts regarding the construction of quality through this perceptive have to do with determining which physical attributes are most valued. In addition to appearance, product characteristics regarding origin and means of production are becoming ever-more powerful indicators of quality (K. Darby, Batte, Ernst, & Roe, 2006), particularly among for those adopting a place-based perspective on quality. Actors operating from this perspective tend to define quality as it relates to safety, trust, and transparency (K. Darby, et al., 2006). Evaluations may also be made on the basis of national protectionism (Miranda, 2006) and/or regional economic development (K. Darby, et al., 2006). Product origin is, therefore, a complicated social construction, serving as a proxy for industry regulation in some cases or as a means of communicating identity or vitality for others. Lastly, quality appraisals may be made based on civic ideals. Struggles over the meaning of quality as defined by this perspective are largely concerned with the environmental or social repercussions of food products. Products are considered to be high quality if they are produced through methods that are ethically and environmentally sound (J. L. Brown & Ping, 2003). Therefore, evaluations of food

quality under this perspective are not made based on a product's physical attributes, but focus instead on how the food was produced. As a result, though these conflicts are largely situated within the consumer sphere, shifts in appraisals under this perspective have the ability to affect changes in the food system at large.

3.3 Framing

Framing theory builds upon social construction as an approach to understanding the process by which powerful organizations and individuals define and create shared meanings around a social issue. Frames are organizing principles that serve to structure engagement with and understanding of the social world (Reese, 2001) and are created through a process of selective emphasis on certain issue elements over others (Gamson & Modigliani, 1989). Through this process, powerful elites (both individuals and institutions), including journalists, politicians, as well as social and industry leaders use rhetoric and other forms of influence to encourage certain interpretations and discourage others. In policy development, framing may be employed as a means for defining a social problem and identifying acceptable solutions (Entman, 1993).

The mass media provide a prominent platform upon which issues are framed. Issue frames are created in the media through rhetoric emphasizing certain features, values, facts, or opinions on an issue over others in such a way as to encourage certain interpretations and discourage others. Media frames, therefore, give meaning to an issue and create a interpretative structure (Gamson & Modigliani, 1989), which readers or viewers can use to understand and discuss public events (Tuchman, 1978). Frames become visible through characteristics of the news text and are embodied in the "keywords, metaphors, concepts, symbols, and visual images emphasized in a news

narrative" (Entman, 1993). Several actors contribute to the framing process, including the journalist, who selects issues and events to be covered, and the sources quoted, who provide the interpretive lens through with to view the event (Entman, 1993). In reporting, several media frames compete across news sources and over time to set one frame around an issue.

This work applies the concept of framing to explore the ways in which COOL is defined in the traditional and new media. Through frame analysis, our findings reveal how invested actors and organizations framed some elements and aims of COOL as more salient than others based on their varying interests and value judgments. We also extend the concept of framing to advertising in our analysis of presentations of origin information in store circulars and at point of purchase in order to describe the relative value of COOL as a marketing tool, and uncover the product characteristics communicated through the label.

References

Beck, U. (1986). *Risk Society: Towards a New Modernity*. London: Sage.

Blumer, H. (1962). Society as Symbolic Interaction In A. M. Rose (Ed.), *Human Behavior and Social Process: An Interactionist Approach*: Houghton-Mifflin.

Brown, J. D., & Walsh, C. K. (2002). Effects of media on personal and public health. In J. Bryant & D. Zilmann (Eds.), *Media Effects: Advances in Theory and Research*. Mahwah, NJ: Lawrence Erlbaum Associates.

Brown, J. L., & Ping, Y. (2003). Consumer pereption of risk associated with eating genetically engineered soybeans is less in the presence of a perceived consumer benefit. *Journal of the American Dietetic Association 103*(2), 208-214.

Cabello, F. C. (2006). Heavy use of prophylactic antibiotics in aquaculture: A growing problem for human and animal health and for the environment. *Environmental Microbiology, 8*(7), 1137-1144.

Cottle, S. (1998). Ulrich Beck, "Risk Society" and the media: a catastrophic view? *European Journal of Communication, 13*(1), 5-32.

Darby, K., Batte, M., Ernst, S., & Roe, B. (2008). Decomposing local. A conjoint analysis of locally produced foods. *American Journal of Agricultural Economics, 90*(2), 476-486.

Darby, K., Batte, M. T., Ernst, S., & Roe, B. (2006). *Willingness to pay for locally produced foods: a customer intercept study of direct market and grocery store shoppers*. Paper presented at the American Agricultural Economics Association Annual Meeting, Long Beach, CA.

Entman, R. B. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication, 45*(51-58).

Gamson, W. A., & Modigliani, A. (1989). Media discourse and public opinion on nuclear power: A constructionist approach. *American Journal of Sociology, 95*(1), 1-37.

Mergler, D., Anderson, H. A., Chan, L. H. M., Mahaffey, K. R., Murray, M., Sakamoto, M., & Stern, A. H. (2007). Methylmercury exposure and health effects in humans: A worldwide concern. *Ambio, 36*, 3-11.

Miranda, M. J. (2006). The perverse effect of Country-of-Origin Labelling on multiculturalism in a pluralistic society. *The European Retail Digest, 50*, 56-58.

Reese, S. D. (Ed.). (2001). *Framing Public Life: Perspectives on Media and our Understanding of the Social World*. Maywah, NJ: Lawrence Erlbaum.

Tuchman, G. (1978). *Making news: A study in the construction of reality*. New York: Free Press.

Valentino, L., Torregrossa, M. V., & Saliba, L. J. (1995). Health effects of mercury ingested through consumption of seafood. *Water Science and Technology, 32*, 41-47.

Chapter 4: Methods

4.1 Rationale for Qualitative Methods

A qualitative approach is critical to the relevance and contributions of this work. Qualitative research seeks to provide an in-depth knowledge of a particular phenomenon. Based in a constructionist epistemology, the point of departure for this research is the understanding that reality is actively created though social processes and semiotics. Questions around meaning making - the process and results – are central to this field of study. The present research draws on these concepts and theories to explore the nature and patterns in framing COOL across a diversity of communication formats with the aim of illustrating the informational foundation upon which public opinion about COOL is formed. It is assumed in this work that the data – advertisements, product labels, news articles, blog posts - were created through social processes involving negotiations between stakeholders. All together, findings from this research situate COOL within these social interactions and describe the how framing of the policy may vary across contexts and by stakeholder group.

4.2 Frame Analysis

To begin our analysis, we had to first establish our analytic approach to identifying and examining frames in each of the communication sources included in this work. Frame analysis can be inductive in nature, in that frames may emerge from the material during the course of analysis or it can be deductive, such that frames are defined and operationalized prior to research (deVreese, 2005). This work employed a mixed approach. Most of the frames examined in this work were defined a priori, in accordance

with our research questions; however, additional frames did also emerge and were included in our analysis following the initial reading and coding of the data.

Second, we determined what would constitute a frame. Given the timely relevance of this work, we adopted an issue-specific, as opposed to generic, approach to framing. Within this context, we drew on a combination of approaches to defining framing devices. The first was outlined by Entman (1993) who asserts that frames can be identified and examined by 1) the presence of absence of certain keywords and 2) referral to sources of information or inclusion of sentences that reinforce clusters of themes, facts, or judgments. The second is an empirical approach described by Tankard, 2001, who outlines 11 textual elements involved in constructing frames (Tankard, 2001). Each of the three investigations comprising this body of work draws upon a different combination of these elements, as summarized in Table 4.1.

Table 4.1 Elements of Frame Analysis

Information Environment	Research Questions	Framing Elements	Units of Analysis
Grocery Stores	• How does presentation of COOL vary across store type (high-, mid-, low-cost) and by informational context (store-based labels and ads)?	• Keywords • Photos • Logos	• In-store label • Advertisement
Print News Media	Comparing across U.S., Mexican, and Canadian news coverage of COOL: • To what extent is COOL framed through the lens of public health relative to economic or trade issues? • To what extent are public health professionals cited in reporting on COOL? How does framing of COOL differ between stakeholder groups?	• Headlines • Subheads • Sources • Quotes • Article text • Conclusions	• Headline • News article
Participatory Media	Comparing across political orientation and by label type: • To what extent does process labeling spark public engagement? • To what extent do advocacy arguments for mandatory process labeling adopt public health arguments relative to other concerns?	• Headlines • Subheads • Article text • Conclusions	• Blog article • Individual reader comment

4.3 Coding

Codes summarize themes in the dataset (Bernard & Ryan, 2010; Green & Thorogood, 2009). In this work, some codes were predetermined in reflection of the research questions, however; the majority were formed through an iterative process of reading and coding several subsets of documents (Altheide, 1996a). Revisions and expansions were made to the codebooks before a single rater, the author of this work, applied them to each dataset. Ambiguous labels, advertisements, and sections of text were coded after discussion with coauthors. Additionally, in Study 2, investigating the framing of COOL in the international news media, ambiguous data drawn from Mexican news sources were reviewed with a native Spanish speaker, who assisted in developing and refining the codebook. Codes were then applied to ambiguous text after a consensus was reached. Specific details about the themes and textual elements included in the codebook are outlined in each of the manuscripts to follow.

4.4 Sample Selection

Study 1, exploring the framing of COOL in Baltimore City grocery stores, was comprised of an exhaustive sample, meaning that all identified, eligible items were included for analysis. All point-of-purchase labels and packages for unprocessed fresh and frozen were included in the analytic sample, as were all advertisements for these products appearing in the circulars for participating stores. Studies 2 and 3 employed progressive theoretical sampling strategies to select news articles and blog posts about COOL. In order to identify the full range of frames and themes relevant for exploration, I first conducted a broad search of news sources and blog sites. After reading through a selection of the initial samples, I identified key words that appeared frequently in the

articles and postings and refined the searches based on these terms (Altheide, 1996a). News articles were eligible for analysis if they were published between 2001 and 2011 and included more than one sentence on the subject of COOL. Eligible blog postings included two or more sentences about state or federal policies requiring labeling of process attributes. For comments, this requirement was to one or more sentences. Specific details about the selection of stores, news sources, and blog sites from which our textual data were drawn are available in the manuscript chapters to follow.

4.5 Analysis

Each of the three studies comprising this work was conducted with mixed methods analyses. Quantitative content analyses provided an overview of the data, including the volume of data and predominance of certain themes, across the datasets and by analytic groupings. Qualitative data analyses were employed to explore the construction of frames around COOL.

In each study, quantitative analyses were performed first in order to establish recurrent themes across the datasets and determine differences in the occurrence of frames by analytic groupings. In this phase of analysis, numerical values were assigned for each code (either 0 or 1, indicating whether a trait was present or not). These values were then used to conduct descriptive analyses. Building upon findings from the quantitative analysis, qualitative analytic methods were applied to explore questions related to the framing of COOL in the textual data. Qualitative methods served to explore the definitions, meaning and presentation of the relevant themes (Altheide, 1996a) around COOL in labels, advertisements, news articles, blog pieces, and reader comments.

References

Altheide, D. L. (1996). *Qualitative Media Analysis*. Thousand Oaks: Sage.

Bernard, H. R., & Ryan, G. W. (2010). Part 1: The Basics *Analyzing Qualitative Data* (pp. pp.53-74). Thousand Oaks, CA: Sage Publications, Inc. .

Green, J., & Thorogood, N. (2009). *Qualitative Methods for Health Research, Second Edition*. Thousand Oaks, CA: Sage.

Tankard, J. W. (2001). The empirical approach to the study of media framing. In S. D. Reese, O. H. Gandy & A. E. Grant (Eds.), *Framing Public Life* (pp. pp.95-106). Mahwah, NJ: Lawrence Erlbaum.

Chapter 5:

Manuscript 1: Country of Origin Labeling Prior to and at the Point of Purchase: An Exploration of the Information Environment in Baltimore City Grocery Stores

Article published in January 2014, citation:

Lisa P. Lagasse, David C. Love & Katherine Clegg Smith (2014) Country-of-Origin Labeling Prior to and at the Point of Purchase: An Exploration of the Information Environment in Baltimore City Grocery Stores, Ecology of Food and Nutrition, 53:1, 58-80.

5.0 Abstract

The Country of Origin Labeling (COOL) law requires United States grocers to indicate the origin and procurement method (farm-raised or wild-caught) for seafood. This study explored the presentation of COOL on fresh, frozen, packaged, and unpackaged seafood in Baltimore City grocery stores. Eight stores were visited bi-monthly to photograph seafood labels, and circulars were collected weekly from fourteen stores over three months. Ninety-six percent of products were labeled correctly. Forty-eight percent of advertisements included COOL. While in-store labels did not highlight COOL, advertising featured references to domestic and wild-caught seafood, signaling to customers that these are high-value product qualities.

5.1 Introduction

Mandatory country of Origin Labeling (COOL), introduced through the 2002 United States Farm Bill, requires grocery retailers to notify consumers at the point of purchase about the country of origin of certain foods, including fish and shellfish, meat and poultry, fresh and frozen produce, and specific nuts and legumes (United States Department of Agriculture, 2009). For seafood, the label must further differentiate between farm-raised and wild-caught fish and shellfish. The term "farm-raised" refers to products that are hatched, raised, and harvested in captivity where the term "wild" describes fish and shellfish harvested in the wild (Agricultural Marketing Service, 2009). Only full grocers, whose profits on produce exceed $230,000 annually, are subject to COOL, thus excluding butcher shops, fish markets, corner stores, as well as many small grocers and specialty markets (Agricultural Marketing Service, 2009).

The law states that COOL must be visible and legible, but it does not specify how retailers should structure their merchandise display in order to communicate origin and procurement information to consumers. Furthermore, the law does not require grocers to include origin or procurement information in their advertising or other promotional materials (Agricultural Marketing Service, 2009). Retailers, then, are free to define what, if any, marketing strategies and visual cues they will employ to attract shoppers' attention to COOL. This is a particularly relevant avenue of study given the controversial history of COOL (Krissoff, Kuchler, Nelson, Perry, & Somwaru, 2004). While consumer advocates have long favored the law, many retailers opposed its passage for fear that the cost of implementing the policy would outweigh the benefits (Krissoff & Kuchler, 2007).

Retailers' highlighting of origin or procurement method in seafood advertising and labeling may then suggest that they are beginning to perceive or are attempting to frame the value of these product features relative to others. This study explores variations in the implementation of COOL across grocery stores in Baltimore City and by informational format. Of particular interest is the nature of information available to consumers regarding COOL both prior to and at the point of purchase and how the presentation of this information may vary between store advertisements and in-store labels.

5.1.1 Food Marketing and Labeling and Consumer Demand for Information

The information environment in grocery stores at once influences and reflects societal expectations of and values around food (Caswell & Padberg, 2002). To shape consumer expectations, advertising and in-store displays draw attention to specific foods or highlight particular product characteristics. In doing so, retailers increase consumer awareness of certain attributes and create demand for specific products (Henneberry & Armbruster, 2003). Featuring certain product characteristics over others may also reveal an effort to construct these attributes as being valuable to the individual consumer and to public health more broadly.

Food labeling and advertising also meets consumers' growing demand for information about the food they purchase (Caswell & Mojduszka, 1996; Henneberry & Armbruster, 2003; Wessells, 2002). Heightened awareness about food borne illness and growing concern about the environment has led to demands for safer, healthier, more traceable foods (Henneberry & Armbruster, 2003). Recognizing that consumers will seek out products deemed to be safer or healthier, producers and retailers of seafood, in

particular, have increasingly distinguished their products according to country of origin as well as nutritional and environmental characteristics (Mariojouls & Roheim, 2002).

5.1.2 COOL: Defining Credence Characteristics

Food labels are particularly useful in identifying and defining credence attributes, those characteristics which are neither tangible nor directly observable even after purchase (M. R. Darby & Karni, 1971). For food, safety, nutrition, production conditions, and ethical considerations are important attributes guiding consumer food choices (Henneberry & Armbruster, 2003; Wessells, 2002). Labeling can transform these credence attributes into identifiable, searchable characteristics and convey information about the 'true' nature of a product (Caswell, 1998b; Henneberry & Armbruster, 2003).

5.1.3 COOL as a Signal of Food Safety

The role of food labels as a signal of food safety and quality is increasingly relevant in light of rapid changes in technology for food production, processing, and distribution, increasing globalization of the food system (Popkin, 2006), and growing uncertainty among consumers about food safety (Brewer & Rojas, 2008; Kriflik & Yeatman, 2005; S. Miles, et al., 2004; Roe, et al., 2001). Concerns about food safety are particularly salient for consumers of seafood. While there is a vast and growing body of research that indicates a myriad a health benefits associated with eating fish and shellfish (Genius & Schwalfenberg, 2006; Hu & Willett, 2002; Mozaffarian, 2008; Osher & Belmaker, 2009; Parker et al., 2006), a number of negative health consequences have, however, been documented with frequent consumption of seafood (Mergler, et al., 2007; Nesheim & Yaktine, 2007; Valentino, et al., 1995). In two surveys of seafood shoppers, respondents indicated a broad knowledge of health and safety concerns about seafood

(O'Dierno, et al., 2006) and ranked health risks from possible contaminants among the top three most important factors influencing respondents' purchase decisions (Gorelick, Sudhakaran, Roheim, & Beutel, 2011). Despite this interest in seafood safety, the risks and benefits associated with seafood consumption are not always clearly communicated to the public (Greiner, et al., 2010).

There is some evidence that origin labeling is an important decision aid among seafood shoppers (Claret et al., 2012; Gorelick, et al., 2011; O'Dierno, et al., 2006; Wirth, Love, & Palma, 2007), signaling food safety and quality (Wirth, et al., 2007). The perceived utility of country of origin labeling has been found to be greater among consumers who express concern over food safety (Roosen, 2003). In a market-based survey of shrimp shoppers, for instance, country of origin was more strongly associated with quality and safety than were other characteristics such as size, product form, price, or production method (Wirth, et al., 2007). COOL may, therefore, translate food safety, a credence attribute, into a identifiable characteristic.

5.1.4 COOL as a Signal of Environmental Sustainability

Environmental impacts are a growing area of concern with respect to food production (Food and Agriculture Organization of the United Nations, 2006a) and consumers are increasingly considering environmental issues in making seafood purchases (Gorelick, et al., 2011; O'Dierno, et al., 2006; Verbeke, Vonhonacker, Sioen, Van Camp, & DeHenauw, 2007). In a household study, shoppers ranked environmental impact among the top ten factors in making purchasing decisions for purchase of fish and shellfish (Gorelick, et al., 2011). Environmental concerns may be explicitly linked with procurement method, such that some shoppers will avoid wild fish for due to

sustainability concerns (O'Dierno, et al., 2006; Verbeke, Vonhonacker, et al., 2007), while others pass up farmed fish both for environmental reasons (Gorelick, et al., 2011; Whitmarsh & Giovanna, 2011) as well as worry over quality (Verbeke, Sioen, Bruso, DeHenauw, & Van Camp, 2007; Verbeke, Vonhonacker, et al., 2007). Because the label distinguishes between wild and farm-raised fish and shellfish, COOL may serve as a signal for process conditions, transmitting information about the potential environmental impact of seafood purchases (Krissoff & Kuchler, 2007; Wessells, 2002).

5.1.5 Summary

While research is mixed on consumer response to COOL (Joseph, Lavoie, & Caswell, 2009; Kuchler, Krissoff, & Harvey, 2010; Loureiro & Umberger, 2005; Schupp & Gillespie, 2001; Umberger, et al., 2003), a growing body of literature suggests that both the origin and production history of fish and shellfish are relevant points of consideration among consumers as they decide what seafood to purchase (O'Dierno, et al., 2006; Wessells, 2002). Coupled with an increasing demand for information about otherwise intangible product qualities such as safety, quality, and environmental impact (Caswell & Mojduszka, 1996), COOL may become a valuable tool in marketing certain product attributes over others and ultimately guiding consumers' choices at the point of purchase. This study aims to explore the nature and presentation of country of origin and procurement method in grocery retailers' advertising for and labeling of seafood.

5.2 Methods

5.2.1 Study Overview

This research took the form of a case study of a single U.S. city as a purchasing environment. The following two research questions guided the analysis: 1) What

information is available to consumers about the country of origin of fish and shellfish prior to and at the point of purchase? And 2) How does presentation of country of origin and procurement information vary between store ads and seafood labels?

5.2.2 Study Site

Case study research facilitates the development of a nuanced and detailed understanding a phenomenon or event in its real-world context (Flyvbjerg, 2011). The present investigation seeks to illustrate the informational context in which COOL for seafood is implemented. Baltimore was identified as an information-rich case, capable of yielding transferable findings (Yin, 2009). The city is located in central Maryland on the Patapsco River, an arm of the Chesapeake Bay. Its proximity to marine resources makes seafood both a culturally- and geographically-salient element of the diet for Baltimore residents (Kittler, Sucher, & Nelms, 2012). With a population of 619, 493, Baltimore is the 24th largest city in the United States. According to the 2010 U.S. Census, 63.7% of the population was African American, compared to 29.6% Caucasian, and 21.3% of residents live in poverty (U.S. Census Bureau, 2010). Like the majority of large metropolitan areas in the U.S., Baltimore is markedly segregated by race and income (Frey & Myers, 2005) contributing to disparities in access to food across the city (Center for a Livable Future, 2010). The distribution of grocery outlets is uneven across Baltimore City, such that supermarkets, which provide a wider range of fresh and non-processed foods than other store types, comprise a greater proportion of the food environment in predominantly white neighborhoods (13%) compared to neighborhoods that are predominantly of African American (8%) (Center for a Livable Future, 2010).

The range and distribution of food outlets in Baltimore is consistent with broader trends urban food environments (Powell, Slater, Mirtcheva, Boa, & Chaloupka, 2007).

5.2.3 Store Sample

The sampling frame for this investigation was comprised of all grocery outlets in Baltimore City (n=600). Reflecting the purview of the Country of Origin Labeling law, convenience stores (n=144) and small grocers/specialty shops (n=414) were excluded from the sampling frame, as were supermarkets that did not sell seafood (n=9). Following exclusions, 33 supermarkets, representing fourteen different retailers, fit the eligibility criteria for inclusion in this study.

Of these fourteen retailers eligible for inclusion in this research, the final analytic sample included all independent supermarkets in Baltimore City (n=6) and one store location from each grocery chain (n=8). Chain store locations were chosen with the aim of reflecting the distribution of grocery stores across Baltimore. We made two separate visits to two additional store locations for each chain of stores. This was done to assure consistency in labeling within each chain, to assess potential differences in product variety by store location, and to determine whether our sample size was large enough to reach informational redundancy (Sandelowski, 1995). No differences were noted in labeling or advertising and little variation was observed in product availability within each chain of stores, suggesting that no new information would be added were we to increase our sample size. In total, fourteen stores located in Central, North, and East Baltimore were included in this investigation. This distribution reflects the Baltimore food environment, with the majority of large grocery stores located in the Central, Northern, and Eastern districts (Center for a Livable Future, 2010).

5.2.4 Data Collection

5.2.4a At the Point of Purchase – Store Labels

Of the fourteen stores included in this study, the lead author made bi-monthly visits to eight stores for three months between November 2010 and January 2011 (about 4 visits per store) for a total of 28 store visits. The eight stores from which both product labeling and advertising data were collected reflected the variety of store environments and products available across the larger sample and were not meaningfully different than those from which only advertising data were gathered. While most stores were visited four times throughout the data collection period, two stores denied further access after two study visits. However, little variation was observed in the labeling practices for each store during data collection and data saturation was achieved early on. For this reason, denial to make additional observations had little impact on the investigators' abilities to draw conclusions from the data and these stores remained in the analysis.

In order to assess the nature of information about seafood origin and procurement provided to consumers at the point of purchase, COOL for non-packaged fresh, packaged fresh, and frozen seafood were photographed in each store. Fresh, non-packaged seafood were most often sold by the pound at a seafood counter and were described at the point of purchase as "thawed," "previously frozen," or "never frozen." Packaged, fresh seafood were typically sold in plastic-wrapped tray packages in refrigerated cases and frozen seafood were sold pre-packaged in the freezer section. Frozen seafood was sold under a variety of brand names and packaging and labeling is implemented at the distributor level.

We recorded the species (such as, salmon, tilapia, squid, or hake) and cut (for example, fillet, steak, "nuggets," or whole) for all non-packaged fresh, packaged fresh, and frozen seafood. In addition, price was recorded for all fresh seafood. Field notes, taken prior to and immediately following each store visit, supplemented data collection by detailing the store environment, including neighborhood characteristics, variety and types of products sold, in-store amenities and upkeep, and the physical and informational environment around the seafood section. In addition, any relevant events occurring at the time of the data collection, such as national or religious holidays or sports event, were recorded in our field notes.

5.4.2b Prior to Purchase – Store Advertising

Of particular interest in this study was if and to what extent COOL information appeared in store advertisements, and whether the nature of this information varied in any way from how it was presented at the point of purchase. To explore this aim, store circulars were collected online, weekly from all fourteen stores between November 2010 and February 2011. During data collection, we observed that presentation of COOL in advertising as slightly more variable than on in-store labeling. For this reason, an additional month of data collection was deemed necessary to achieve saturation. Online circulars were first located through a website address printed on circulars distributed on-site in stores. Print versions of the store circulars were periodically compared to the corresponding online reproductions to assure that each store posted exact replications of their print ads online.

5.2.5 Analysis

We employed a mixed-methods investigation of information available to Baltimore shoppers prior to and at the point of purchase regarding country of origin and procurement method for seafood. Qualitative methods were employed to describe the presentation and prioritization of COOL, while quantitative methods were used to examine the prevalence and co-occurrence of codes throughout the dataset.

The sample was divided into three categories: low-price, mid-price, and high-price stores. Store categorization was based on differences in both the average and the range of prices for seafood products. Price was recorded post data-collection from photos of product labels and archived store circulars. It should be noted that pricing units varied by packaging such that non-packaged, fresh seafood was priced, advertised, and sold by the pound while packaged fresh and frozen products were priced, advertised, and sold by the package. For this reason, field notes and observations about the store environments served to corroborate the analytic categorizations.

In order to determine the degree to which origin and procurement information are cast as being special, important, or otherwise desired product characteristics, the presentation of these features in store circulars and on point-of purchase COOL was assessed for each store. In reflection of this aim, labels and circular ads were coded according to the following characteristics so as to describe the prominence and consistency of COOL both in the store and in advertising:

- Location – For store circulars, is the ad positioned higher or lower on the page relative to others? Is it central on the page or off to the side? For labels, how is it placed relative to the product?

- Use of color – Do the colors draw attention to COOL information in the advertisement or label?
- Font Size – Does COOL information appear smaller, larger, or the same size as other product information?
- Bolding – Is COOL information bolded (or not) compared to other product information?
- Font change – Is COOL presented in uniform font compared to other product information?

A thorough reading of marketing and communication literature served to develop the initial coding criteria (Bellizzi, Crowley, & Hasty, 1983; Chandon, Hutchinson, Young, & Bradlow, 2009; Danesi, 2008; Gorn, Chattopadhyay, Yi, & Dahl, 1997; Juni & Gross, 2008; Lohse, 1997; Pieters & Wedel, 2004; Rosbergen, Pieters, & Wedel, 1997; Schindler, 1986; Schoormans & Robben, 1997). The codebook was then finalized through several rounds of pilot coding where each coding category was challenged, expanded, or removed based on its ability to capture nuance in and appropriateness to the data. The final codebook was applied to the sample by the lead author. In analysis, each code was assigned a numerical value (either 0 or 1, indicating whether a trait was present or not) and subjected to descriptive quantitative analysis. Additional observations were drawn from the raw data as well as the lead author's field notes.

5.3 Results

5.3.1 Store Overview

The lead author photographed a total of 628 Country of Origin Labels for non-packaged fresh, fresh-packaged, and frozen seafood products from eight stores.

Differences were observed in the variety of seafood sold across stores, with a range of 6 to 19 products sold at each store (Table 5.1). More products were available at high-price stores than low-price stores. In addition, the packaging options for seafood products differed by store type; high- and mid-price stores sold fresh, unpackaged fish and shellfish in addition to fresh-packaged and frozen seafood while the packaging selection in low-price stores were more limited (Table 5.1).

Table 5.1 Number and Type of Seafood Products Available for Purchase, by Store

Store Type[a]	N Stores	Species[b]	Fresh, Non-packaged[b]	Fresh, Packaged[b]	Frozen[b]
Low-Price	3	6, 9, 9	0, 33, 0	0, 6, 23	34, 10, 4
Mid-Price	3	7, 15, 17	33, 61, 28	13, 9, 44	18, 12, 78
High-Price	2	16, 19	37, 38	46, 6	90, 5

[a] Store categorization was based on differences in both the average and the range of prices for seafood products.

[b] Data points indicate values for Store 1, Store 2, and Store 3, respectively.

The vast majority of seafood in stores was labeled in concordance with the COOL policy (96.2%), specifying both the product's country of origin and its procurement method (Table 5.2). By country of origin of products, 44.5% were domestic, 52.5% were imported, were mixed origin (1.9%), and were not labeled (1.1%). By procurement method of products, 53.7% were wild-caught, 43.6% were farmed, and 2.7% were not labeled. Table 5.2 summarizes seafood origin and procurement characteristics by store. Thirty-seven different species of seafood were sold across all stores, with the most common being salmon (n=87, 13.9%), tilapia (n=85, 13.5%), catfish (n=67, 10.1%), and shrimp (n=61, 9.7%). See Table 5.3 for distinctions between domestic, imported, wild,

and farmed seafood among the most commonly sold products. We compared labeling schema between seafood products within each category of packaged fresh, non-packaged fresh, and frozen, but did not find any remarkable or informative differences. Thus, the analyses presented here focus on differences in the presentation of COOL.

Table 5.2 COOL at the Point of Purchase, by Store Type (n=628 products)

	Origin				Procurement		
Store Type	**Domestic**	**Imported**	**Mixed**	**None Listed**	**Wild**	**Farmed**	**None Listed**
Low-Cost (n=110)	44.5%	51.8%	2.7%	0.91%	48.2%	43.6%	8.2%
Mid-Cost (n=295)	41.7%	55.2%	1.7%	1.7%	53.6%	44.7%	2.0%
High-Cost (n=222)	48.2%	49.5%	1.8%	0.45%	56.8%	42.3%	0.90%
All Stores (n=628)	44.4%	52.5%	1.9%	1.1%	53.7%	43.6%	2.7%

Table 5.3 Most Commonly Sold Seafood, by Origin and Procurement (n=628 products)

	Origin				Procurement		
Seafood Type	**Domestic**	**Imported**	**Mixed**[a]	**None Listed**	**Wild**	**Farmed**	**None Listed**
Salmon (n=87)	35.6%	56.3%%	8.0%	0	48.3%	48.3%	3.4%
Tilapia (n=85)	30.6%	64.7%	4.7%	0	0	100%	0
Catfish (n=67)	47.8%	47.8%	4.5%	0	3.0%	97.0%	0
Shrimp (n=61)	21.3%	77.0%	1.6%	0	42.6%	50.8%	6.6%

[a] These products were labeled with multiple origins.

5.3.2 Comparisons Across Three Store Types

The proportion of seafood sold as wild-caught was higher in the high-price stores than in the low-price stores. For low-price stores 48.2% of products were wild-caught, 43.6% were farmed, and 8.2% of products were unlabeled. At mid- and high-price stores, a slightly greater proportion of seafood sold was wild-caught (53.6% and 56.8%, respectively) compared to farm-raised (44.7% and 42.3%, respectively). The proportion of imported seafood was higher at low-price stores than mid- and high-price stores. Imported seafood constituted 55.2% of products in low priced stores, 51.8% of products in mid-priced stores, and 49.5% of products in high-priced stores. See Table 5.2 for a summary of product characteristics by store type.

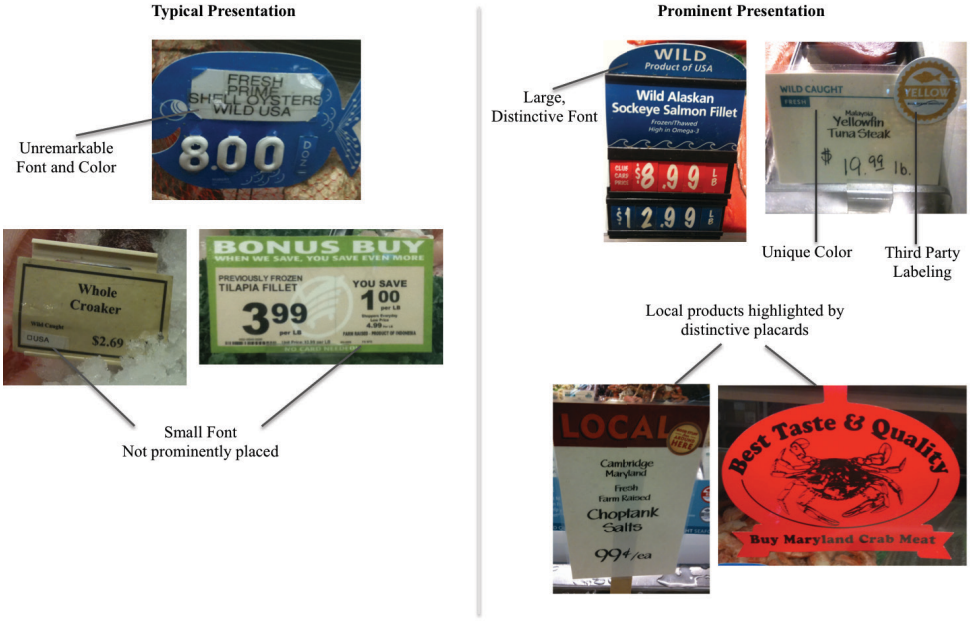
5.3.3 COOL for Fresh, Non-packaged Seafood

For fresh seafood, COOL was typically presented on uniform placards next to or in front of each product, featuring origin and procurement information, along with product price, sale information, and (for one high-price store) third party certification. For all stores, the labeling format was consistent throughout the entire data collection period. Point of purchase placards in each store all featured price more prominently than any other product information. Origin and procurement information was most often presented in smaller font relative to the other text. While this information was legible, it was often unremarkable.

A small number of mid- and high-price stores highlighted COOL at the point of purchase by using a unique font style or color, displaying origin and procurement information in a larger format relative to other product characteristics, or placing one or both of these features in a prominent position on the label - at the top of the placard.

Across all stores, local products, typically oysters, clams, or crabs harvested in Maryland or Virginia, were those most visibly highlighted through the use of special placards or supplementary materials placed near the product at the seafood counter. For labels highlighting country of origin information, some also included a regional description, particularly for Alaskan and Gulf seafood. In addition, labeling for one high-price store consistently included a supplementary, third-party logo indicating the sustainability practices or concerns associated with each seafood product. This label was separate from COOL. Figure 5.1 provides examples of typical and prominent presentations of COOL for fresh seafood.

Figure 5.1 Comparison of Typical and Prominent Presentations of COOL at the Point of Purchase in Baltimore City Grocery Stores



5.3.4 COOL for Fresh, Packaged Seafood

As with the labeling for non-packaged fresh seafood, COOL for packaged fresh seafood was uniformly presented at each store. Further, very little variation was observed

between stores in the presentation of COOL for packaged, fresh seafood. Price was most visible on the label, presented in a larger font relative to other product information. Origin and procurement information appeared in small font that was not highlighted through use of color, bolding, or italics. Though the information was present, it was not prioritized in any way. One store, in fact, displayed origin information on the underside of the package in a checklist format so that the only way a customer would encounter this piece of information is if he/she were to explicitly seek it out.

5.3.5 COOL for Frozen Seafood

The presentation of COOL for frozen seafood was more variable than that of fresh seafood. These products are packaged and branded by a number of different seafood companies, and the labeling convention varies across marques. Origin and procurement information was often difficult to find on frozen seafood packages, typically presented in small type on the back of the package, below the nutrition label. In cases where COOL information was highlighted, however, it was typically displayed on the front of the package. Frozen seafood packaging more commonly highlighted procurement method over origin. Specifically, seafood companies featured wild products over farm-raised.

Lastly, in addition to COOL information, frozen seafood packages often presented health and environmental claims. Health claims were typically featured on the front of the package, advertising seafood as "low fat," a "healthy choice," "high in omega-3," or as being "high in protein." A small number of packages made environmental claims, describing the products as "a wild sustainable resource," for example, or "best aquaculture practices certified." Additionally, wild-caught seafood was often presented as "natural," suggesting that consumers may associate these terms with one another.

5.3.6 COOL in Advertising

A total of 660 circular advertisements were collected across the entire sample (14 stores). Price was the most prominent piece of information appearing in the ads. Just under half (n=305, 46%) of all seafood ads presented either origin or procurement information. The most commonly advertised fish and shellfish were shrimp (n=149, 22.6%), crab (n=61, 9.2%), catfish (n=43, 6.5%), and scallops (n=33, 5%).

In general, there was little variation by store type in the proportion of ads including COOL information (43% for low-, 50% for mid-, and 44% for high-price stores). Overall, procurement information was highlighted more frequently than origin across all advertising. Over half of seafood ads, across all stores, featured procurement method, favoring wild-caught products (25.2%) over farmed fish (14.8%). Origin was included in just under one quarter of seafood ads (22.0%), with domestic and imported products receiving equal focus (39.7% and 38.3%, respectively).

Some differences were observed by store type in the COOL-related content appearing in seafood ads. Seafood ads appearing in circulars for low-price stores featured information about origin more often than procurement method, favoring imported seafood over domestic (81.9% versus 72.3%, respectively). In contrast, ads appearing in store circulars for mid- and high-price stores highlighted procurement method slightly more often than origin information. Thirty percent of seafood ads appearing in circulars for mid-price stores featured wild-caught seafood. Slightly more than two thirds (34.5%) of the ads for high-price stores highlighted farm-raised seafood. See Table 5.4 for a summary of COOL information presented in advertising, by store type.

Table 5.4 COOL in Advertising, by Store Type (n=660 advertisements)

	Origin			Procurement		
Store Type	**Domestic**	**Imported**	**None Listed**	**Wild**	**Farmed**	**None Listed**
Low-Cost (n=260)	72.3%	81.9%	47.3%	58.5%	58.5%	34.2%
Mid-Cost (n=253)	19.4%	10.3%	4.3%	30.4%	20.2%	15.0%
High-Cost (n=145)	17.2%	9.7%	7.6%	20.7%	34.5%	12.4%
All Stores (n=660)	39.7%	38.3%	22.0%	25.2%	14.8%	59.7%

5.3.7 Visual and Rhetorical Features Highlighting COOL in Advertising

Ads for seafood appearing in circulars for low-price stores did not typically draw any particular attention to fish or shellfish. In contrast, ads appearing in circulars for mid- and high-price stores were often designed to highlight seafood products. Health claims were most often used to draw attention to seafood ads. Fish and shellfish were presented as a "healthy choice" or "healthy idea." Further, shoppers were impelled to "choose healthy " and "eat seafood twice per week." Salmon, in particular, was advertised as "high in omega-3" or "low fat." These types of health claims appeared in special call out bubbles or were highlighted using a unique font and color.

Similar techniques were used to highlight seafood origin and procurement information in store advertisements for mid- and high-price stores. While present, COOL appearing in advertising for low-price stores was not typically highlighted or featured relative to other product qualities. Among ads including origin information, regional identification-- specifically "Alaskan," "Gulf," and "Scottish"-- was more common than country-level specifications (e.g., U.S. or "domestic"). Locally-raised or -harvested

seafood was frequently featured, specifying the product's origin as "local" or from "Maryland." These words and phrases were presented in a unique color from the rest of the text, drawing the reader's attention.

Ads featuring procurement method typically highlighted wild-caught seafood through the use of unique font style or color or by describing the product as "fresh" or "all natural." Information about farm-raised seafood, if present, was not highlighted through these types or typographical or rhetorical mechanisms. Similarly, ads featuring wild-caught fish and shellfish would highlight procurement method using a blue, green, or yellow emblem featuring the word, "wild" or the phrase, "wild caught!" Ads for wild seafood appearing in circulars for mid- and high-price stores would often highlight these products by describing them as "fresh" or "all natural." Though less frequent, ads for these stores also used environmental claims to draw attention to seafood. One high-price store included emblems indicating certification by the "Marine Stewardship Council" or texting stating the product was "Blue Ocean Institute Certified." Other stores in this category described seafood as "responsibly farmed," "harvested from certified waters," or used non-specific qualifiers to describe procurement, such as "from icy cold waters," "salt water fresh," or "fresh-caught." Figure 5.2 provides examples of typical and prominent displays of COOL in advertising.

Figure 5.2 Comparison of Typical and Prominent Presentations of COOL in Advertising

Low-cost Store

Origin and Procurement Specified

Mid-cost Store

Procurement Specified, No Origin

High-cost Store

Origin and Procurement Specified

5.4 Discussion

With growing knowledge about methods of food production and the connections between diet and health, consumers have come to demand higher quality food (Caswell & Mojduszka, 1996) and expect more detailed information about their food purchases (Henneberry & Armbruster, 2003; Wessells, 2002). In response to these demands, food producers and retailers have focused on promoting their food products by marketing desirable product attributes, namely health, quality, safety, and, to some extent, environmental impact (Caswell & Mojduszka, 1996; Henneberry & Armbruster, 2003; Wessells, 2002).

The information being provided about food content and quality is also shaped by the U.S. government's enhanced requirements regarding informational labeling. Such labeling has the potential not only to shape consumer knowledge and behaviors (Henneberry & Armbruster, 2003), but also may serve as a mechanism for regulating manufacturers' and retailers' marketing practices (Caswell & Mojduszka, 1996; Henneberry & Armbruster, 2003).

Country of origin labeling is one example of a federal policy that aims to address consumers' demand for information through mandated point of purchase labeling. While this policy is mainly informational in its intent (United States Department of Agriculture, 2009), our research demonstrates that there is opportunity for retailers to use COOL as a marketing strategy. This study illustrates the extent to which country of origin and procurement method information, as required by COOL, were highlighted in retailers' labeling of and advertising for seafood. Attention to origin and procurement method in marketing may point to the salience of these features as selling points for fish and seafood.

Point of purchase labeling for seafood in Baltimore City grocery stores largely meets the requirements of COOL as indicated under the U.S. Farm Bill. Nearly all seafood labels and packages included the obligatory information, indicating both the origin and procurement method for fish and shellfish. At the point of purchase, retailers were mostly compliant with the policy but COOL was not highlighted at the point of purchase for fresh seafood. In-store labels did not typically draw attention to seafood origin or procurement, although store advertising most often featured wild-caught and domestic products. Using rhetorical mechanisms, these features were linked to high-value products attributes: health, safety, and environmental impact.

Seafood was most consistently highlighted in advertisements for mid- and high-price stores. These retailers used health claims to draw shoppers' attention, likely appealing to consumers' perceptions of fish and shellfish as nutritious food (Nauman, Gempesaw II, Bacon, & Manalo, 1995; O'Dierno, et al., 2006; Wessells, 2002); however, there were no overt connections between the health benefits of seafood and COOL

attributes. Health and nutrition claims appeared in advertisements featuring foreign and domestic as well as wild and farmed seafood products, alike.

More often, the advertisements examined in this study framed COOL as a safety indicator, making links between procurement method and seafood quality, a key food safety concern among consumers (Grunert, 2005; O'Dierno, et al., 2006; Wirth, et al., 2007). Advertisements featuring procurement method most often highlighted wild-caught fish and shellfish, claiming these products are "fresh" or "all natural." There is some evidence to suggest that consumers view these claims as indicators of food safety and quality. Seafood labeled as "fresh," for instance, is perceived to be of higher quality (Wessells, 2002) and healthier than fish and shellfish not bearing this distinction (Gross, 2003). Similarly, findings from a study of labeling for pork, indicate positive associations with products distinguished as "all natural" as consumers tend to view this designation as a signal for health- and safety-related process attributes, including antibiotic, hormone, and chemical use (Abrams, Meyers, & Irani, 2010). Indeed, process and production are critical concerns to seafood consumers (O'Dierno, et al., 2006; Wessells, 2002). Concerns over the environmental impact and potential health risks of certain aquaculture operations have diminished the social acceptability of the industry (Schlag, 2010; Whitmarsh & Giovanna, 2011). In addition, purchasing studies have demonstrated a preference for ocean-caught fish (Bennet, 2003; O'Dierno, et al., 2006). These biases were reflected in the advertising strategies employed by the stores in this sample, with a greater proportion of seafood ads overall and particularly for mid- and high-price stores, featuring wild-caught fish and shellfish than farm-raised seafood. The advertising tactics observed in the

present study may suggest that retailers recognize potential for COOL as process indicator, framing wild-caught seafood as healthier, safer, and of higher quality.

The labeling and advertising practices observed in the present study also convey a slight partiality toward more sustainable seafood options. Ecological issues emerged as a relevant selling point in advertising for mid- and high-price stores and for marketing on frozen seafood packages, sold across all store types. A variety of tactics were used across stores and marketing platforms, including third-party eco-labeling, separate from COOL and issued by non-governmental organizations like the Marine Stewardship Council, as well as environmentally-relevant claims like, "responsibly farmed," aligning the store or, in the case of frozen seafood, the brand with growing environmental awareness among US consumers. Indeed, though recognition of eco-labels and affiliated claims is still developing among consumers (Gorelick, et al., 2011), there is evidence to suggest that environmental statements direct shoppers' seafood selections (Hallstein & Villas-Boas, 2009; O'Dierno, et al., 2006).

The concentration of environmentally focused advertising and labeling among mid- and high-price stores is an indicator that marketers for these stores perceive such information to be more relevant to their shoppers than do marketers for lower-price stores. However, the effects of marketing are reciprocal in that advertising and labeling practices reflect but may also construct consumer expectations and demands (Wilkins, 2002). In this way, mandatory labeling can serve both to direct marking practices while informing public opinion (Caswell & Mojduszka, 1996).

In addition to environmental motivations, domestic and regional identification emerged as an important selling point for fish and shellfish. Ads and in-store labeling,

alike, drew shoppers to U.S. products broadly, pointing customers toward "Gulf" shrimp or "Alaskan" crab and salmon. Even in stores where COOL was not typically prominent at the point of purchase, distinctive placards, promotional materials, or special symbols were all employed to draw shoppers to local products, specific to the Mid-Atlantic region, at one point or another during data collection. Regional identification was not observed for imported products, suggesting a preference for domestic and/or culturally relevant foods.

The focus on domestic and regional foods in grocery stores is neither new nor specific to COOL. Prior to passage of the national law, for instance, some states had already adopted their own mandatory country of origin labeling laws and guidelines. Beginning in 2001, Louisiana required retailers to label meat as either "imported" or "American" and since the 1980's Florida and Maine have mandated country of origin labels for fresh produce (Schupp & Gillespie, 2001). In addition, starting in the mid-twentieth century, the U.S. government permitted regional marketing campaigns to highlight geographically-identified foods, such as the "Idaho Potato," or the "Washington Apple" (Giovannucci, Barham, & Pirog, 2010). COOL, therefore, may fill an informational need for consumers by extending the continued call for origin labeling. Indeed, studies of consumer preferences suggest that shoppers value domestic and local foods, as these are perceived to have a lower environmental impact (Zepeda & Leviten-Reid, 2004), be superior in quality, safety, and flavor (The Leopold Center, 2004), and benefit the local economy (Zepeda & Leviten-Reid, 2004).

As important as labeling is for informing consumers about food quality, safety, and environmental impact, it is difficult for shoppers to employ or act on labeling if either

products are not labeled accurately or if shoppers do not have access to a range of product alternatives. While we did not directly assess accuracy in labeling, findings from this study suggest that certain products may be mislabeled with respect to their origin or procurement method. Specifically, we recorded domestic labels for 35.6% and wild labels 48.3% of the salmon sold across our study. Nearly all salmon imported to the United States (94%) is farmed (National Oceanic and Atmospheric Administration, 2012), pointing to a potential discrepancy in labeling for these products in our sample. This finding supports a growing body of literature pointing to mislabeling of seafood at the point of purchase (Jacquet & Pauly, 2008; Marko, Nance, & Guynn, 2011; Ropicki, Larkin, & Adams, 2010). As demand for seafood increases and the market expands, so too has mislabeling (Jacquet & Pauly, 2008). Up to one third of the seafood imported to the U.S. may be mislabeled (Jacquet & Pauly, 2008). Mislabeling may threaten the value of COOL as a signal of the safety, quality and, environmental impact and may have consequences for consumers in their potential exposure to contaminants and unknowing contribution to declining fish stocks.

In addition, regardless of information provided, if people have only limited choices of available products to purchase then they are constrained in their options and may not be able to select products that are in line with their nutritional needs or their broader values. Indeed, important differences were noted in this study in the type and variety of seafood sold across the stores included in this analysis. Overall, shoppers at mid- and high-price stores had access to a wider diversity of seafood as compared to customers of low-price markets.

First, the diversity in type and species of seafood was much greater at mid- and high-price stores versus low-price stores. Individuals frequenting higher price stores may then exhibit more varied patterns in seafood consumption, contributing to nutrient-rich diets. In comparison, shoppers at low-price stores are more limited in their ability to vary their intake of fish and shellfish and may, thus, have less diverse diets overall. Variety is central to dietary quality, as high-variety diets are critical to attaining adequate nutrient intake (Foote, Murphy, Wilkens, Basiotis, & Carlson, 2004). Further, a greater diversity in the seafood available to consumers may lessen the concentration of their exposure to contaminants that are specific to any particular fish or shellfish species (Nesheim & Yaktine, 2007).

In addition, differences emerged in the availability of seafood by origin and procurement method, such that both wild-caught and domestic seafood was slightly more common at mid- and high-price stores as compared to low-price stores. While the disparity in access to these products was small, it is important given the marketing focus on wild, domestic seafood. The incongruence between the advertising and availability of these foods may place shoppers at low-price stores at a perceived disadvantage in their ability to access products deemed – at least in marketing - to be healthier and more desirable and may, consequently, influence shoppers' expectations about diet quality overall.

5.4.1 Limitations

This study demonstrates that Baltimore City grocers are largely adhering to COOL regulations, with origin and procurement method emerging as relevant and informative attributes in the sale of seafood. More broadly, this research sheds light on

the practices grocers use to highlight health-relevant information prior to and at the point of purchase grocers. These findings must, however, be considered within the context their limitations. First, all coding was performed by a single rater. Though the co-investigators and other outside experts were consulted during the development of the codebook, it is possible that different raters would vary in their view of the data and may, thus, apply the codebook in a different way. To address this concern, questionable codes were discussed with colleagues and all data were photographed or stored for review. Second, the data were collected between October 2010 and February 2011. It is possible that seasonality or secular events may affect the availability, variety, and marketing of seafood in Baltimore. Follow-up studies may explore the extent to which these factors influence the presentation or salience of COOL in the marketplace. Next, our study focused exclusively on the presentation of country of origin labeling and did not address the issue of mislabeled seafood. Indeed species substitution would impact the veracity of COOL; thus, future investigations may seek to confirm the correctness of COOL. Lastly, this study does not account for why retailers presented COOL as they did, limiting the ability to make inferences about retailers' motivations for whether to highlight COOL and, if so, whether to features certain features over others. Instead, the findings from this investigation reflect the informational context surrounding COOL - without retailer interpretation, as shoppers would experience it.

5.4.2 Implications

As large-scale purchasers, grocery stores play an important role in shaping national dietary trends and habits by determining what is available for consumption. Further, marketing and labeling practices in grocery stores and on packaged foods can

shape consumer desires, expectations, and demands around a variety of food attributes (Henneberry & Armbruster, 2003). Given the prominence of COOL in store advertising, relative to the display of origin and procurement information in stores, findings from this study suggest that grocery retailers may value COOL as a marketing strategy prior to purchase rather than as a decision aid at the point of purchase. COOL was more prominent at the point of purchase, however, in high-end stores relative to mid- and low-price stores, suggesting that retailers may perceive origin and procurement to be important attributes for higher income shoppers. Indeed, framing the apparent value of origin and procurement differently for high- or low-income shoppers may establish discrepant expectations and may even justify differential pricing for seafood.

5.4.3 Future Research

Consumption patterns can have a direct impact both on population and environmental health. This study provides insight into the informational contexts in which labeling food products as to country of origin and procurement method may be relevant to decision making around seafood selection. Further research is needed to understand if and to what extent such information is influential in decision making at the point of purchase.

References

Abrams, K. M., Meyers, C. A., & Irani, T. A. (2010). Naturally confused: Consumers' perceptions of all-natural and organic pork products. *Agriculture and Human Values, 27*(3), 365-374.

Agricultural Marketing Service. (2009). Country of Origin Labeling (COOL) Frequently Asked Questions. Washington, D.C.

Bellizzi, J. A., Crowley, A. E., & Hasty, R. W. (1983). The effects of color in store design. *Journal of Retailing, 59*(1), 21-45.

Bennet, B. S. (2003). consumer preferences for genetically modified fish and seafood: An econometric approach *Thesis, Master of Science in Agricultural and Resource Economics*: Davis College of Agriculture, Forestry, and Consumer Sciences at West Virginia University.

Brewer, M. S., & Rojas, M. (2008). Consumer Attitudes toward issues in food safety *Journal of Food Safety, 28*(1), 1-22.

Caswell, J. A. (1998). Valuing the benefits and costs of improved food safety and nutrition *The Australian Journal of Agricultural and Resource Economics, 42*, 409-424.

Caswell, J. A., & Mojduszka, E. M. (1996). Using informational labeling to influence the market for quality in food products (Vol. NE-165 Working Paper No. 43). Storrs, CT.

Caswell, J. A., & Padberg, D. I. (2002). Toward a More Comprehensive Theory of Food Labels. *American Journal of Agricultural Economics, 74*(2), 460-468.

Center for a Livable Future. (2010). The Baltimore City Food Environment. In S. A. Haering & M. Franco (Eds.). Baltimore, Maryland: Johns Hopkins School of Public Health.

Chandon, P., Hutchinson, J. W., Young, S. H., & Bradlow, E. (2009). Does in-store marketing work? Effects of the number and position of shelf facings on brand attention and evaluation at the point of purchase *INSTEAD Working Paper Series* (Vol. Paper No. 2009/24/MKT/ACGRD).

Claret, A., Guerrero, L., Aguirre, E., Rincon, L., Hernandex, M. D., Martinez, I., . . . Rodriguez-Rodriguez, C. (2012). Consumer preferences for sea fish using conjoint analysis: Exploratory study of the importance of country of origin, obtaining method, storage conditions, and purchasing price. *Food Quality and Preference, 26*(2), 259-266.

Danesi, M. (2008). *Why it sells: Deconding the meanings of brand names, logos, ads, and other marketing and advertising ploys*. Lanham, MD: Rowman & Littlefield Publishing Group.

Darby, M. R., & Karni, E. (1971). Free competition and the optimal amount of fraud. *Journal of Law and Economics, 16*(67-88).

Flyvbjerg, B. (2011). Case Study. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research, 4th Edition* (pp. 301-316). Thousand Oaks, CA: Sage.

Food and Agriculture Organization of the United Nations. (2006). Livestock's long shadow: Environmental issues and options. Rome, Italy.

Foote, J. A., Murphy, S. P., Wilkens, L. R., Basiotis, P. P., & Carlson, A. (2004). Dietary variety increases the probability of nutrient adequacy among adults *The Journal of Nutrition 134*, 1779-1785.

Frey, W. H., & Myers, D. (2005). Racial segregation in U.S. metropolitan areas and cities, 1990-2000: Patterns, trends, and explanations *Research Report 05-573*. Ann Arbor, MI: University of Michigan Population Studies Center.

Genius, S. J., & Schwalfenberg, G. K. (2006). Time for an oil check: The role of essential omega-3 fatty acids in maternal and pediatric health. *Journal of Perinatology 26*, 359-365.

Giovannucci, D., Barham, E., & Pirog, R. (2010). Defining and marketing "local" foods: geographical indications for US products. *The Journal of World Intellectual Property, 13*(2), 94-120.

Gorelick, S. S., Sudhakaran, P. O., Roheim, C. A., & Beutel, D. (2011). Ecolabeling of seafood from aquaculture: A survey of Rhode Island consumer preferences. In U. S. S. Initiative (Ed.). Kingston, RI: University of Rhode Island.

Gorn, G. J., Chattopadhyay, A., Yi, T., & Dahl, D. W. (1997). Effects of color as an executional cue in advertising: Thye're in the shade. *Management Science, 43*(10), 1387-1400.

Greiner, A., Smith, K. C., & Guallar, E. (2010). Something fishy? News media presentation of complex health issues related to fish consumption guidelines. *Public Health Nutrition 13*(11), 1786-1794.

Gross, T. (2003). Consumer attitudes towards health and food safety. In J. B. Luten, J. Oehlenschlager, J. Oehlenschlager & G. Olafsdottir (Eds.), *Quality of Fish from Catch to Consumer: Labeling, Monitoring, & Traceability* Wageningen: Wageningen Academic Publishers.

Grunert, K. G. (2005). Food quality and safety: consumer perception and demand. *Review of Agricultural Economics, 32*(3), 369-391.

Hallstein, E., & Villas-Boas, S. B. (2009). Are consumers color blind? An empirical investigation of a traffic light advisory for sustainable seafood: University of California Berkeley, Department of Agricultural and Resource Economics.

Henneberry, S. R., & Armbruster, W. J. (2003). Emerging roles for food labels: inform, protect, persuade. *Journal of Food Distribution Research, 34*(3), 62-69.

Hu, F. B., & Willett, W. C. (2002). Optimal diets for prevention of coronary heart disease. *Journal of the American Dietetic Association, 288*, 2569-2578.

Jacquet, J., & Pauly, D. (2008). Trade secrets: renaming and mislabeling of seafood. *Marine Policy, 32*(309-318), 309-318.

Joseph, S., Lavoie, N., & Caswell, J. A. (2009). Partial implementation of COOL: economic effects in the U.S. seafood industry *University of Massachusetts Amherst Department of Resource Economics Working Papers*. Amherst.

Juni, S., & Gross, J. S. (2008). Emotional and persuasive perception of fonts. *Perceptual and Motor Skills 106*(1), 35-42.

Kittler, P. G., Sucher, K. P., & Nelms, M. (2012). *Food and Culture*. Belmont, CA: Wadsworth.

Kriflik, L., & Yeatman, H. (2005). Food scares and sustainability: A consumer perspective. *Ecology of Food and Nutrition, 7*(1), 11-24.

Krissoff, B., & Kuchler, F. (2007) Mandatory country-of-origin labeling: Will it benefit consumers? *Vol. 5(May). Amber Waves* (pp. 38-39). Washington, D.C.: Economic Research Service.

Krissoff, B., Kuchler, F., Nelson, K., Perry, J., & Somwaru, A. (2004). Country of Origin Labeling: Theory and Observation. Washington, D.C.: United States Department of Agriculture.

Kuchler, F., Krissoff, B., & Harvey, D. (2010). Do consumers respond to Country-of-Origin Labeling. *Journal of Consumer Policy 33*, 323-337.

Lohse, G. L. (1997). Consumer eye movement patterns on yellow pages advertising. *Journal of Advertising 26*(1), 61-73.

Loureiro, M. L., & Umberger, W. J. (2005). Assessing consumer preferences for Country-of-Origin Labeling. *Journal of Agricultural and Applied Economics, 37* (1), 49-63.

Mariojouls, C., & Roheim, C. A. (2002). Certification and quality signals in the aquaculture sector in France *Marine Resource Economics, 17*, 175-180.

Marko, P. B., Nance, H. A., & Guynn, K. D. (2011). Genetic detection of mislabeled fish from a certified sustainable fishery. *Current Biology, 21*(16), R621-622.

Mergler, D., Anderson, H. A., Chan, L. H. M., Mahaffey, K. R., Murray, M., Sakamoto, M., & Stern, A. H. (2007). Methylmercury exposure and health effects in humans: A worldwide concern. *Ambio, 36*, 3-11.

Miles, S., Brennan, M., Kuznesof, S., Ness, M., Ritson, C., & Frewer, L. J. (2004). Public worry about specific food safety issues. *British Food Journal, 106*(1), 9-22.

Mozaffarian, D. (2008). Fish and n-3 fatty acids for the prevention of fatal coronary heart disease and sudden cardiac death. *The American Journal of Clinical Nutrition, 87*(6), 1991S-1996S.

National Oceanic and Atmospheric Administration. (2012). U.S. Imports of Fishery Products Entered for Consumption.

Nauman, F. A., Gempesaw II, C. M., Bacon, J. R., & Manalo, A. B. (1995). Consumer choice for fresh fish: Factors affecting purchase decisions. *Marine Resource Economics, 10*(2), 117-142.

Nesheim, M. C., & Yaktine, A. L. (2007). Seafood choices: Balancing benefits and risks. Washington, C.C.

O'Dierno, L. J., Govindasamy, R., Puduri, V., Myers, J. J., & Islam, S. (2006). Consumer perceptions and preferences for oganic aquatic products: results from the telephone survey: New Jersey Agricultural Experiment Station

Osher, Y., & Belmaker, R. H. (2009). Omega-3 fatty acids in depression: A review of three studies. *CNS Neuroscience and Therapy, 15*, 128-133.

Parker, G., Gibson, N. A., Brotchie, H., Heruc, G., Rees, A. M., & Hadzi-Pavlovic, D. (2006). Omega-3 fatty acids and mood disorders. *American Jounal of Psychiatry 163*(6), 699-678.

Pieters, R., & Wedel, M. (2004). Attention capture and transfer in advertising: Brand, pictorial, and text-size effects. *Journal of Marketing, 68*, 36-50.

Popkin, B. M. (2006). Technology, transport, globalization and the nutrition transition food policy. *Food Policy 31*(6), 554-569.

Powell, L., Slater, S., Mirtcheva, D., Boa, Y., & Chaloupka, F. J. (2007). Food store availability and neighborhood characteristics in the United States. *Preventive Medicine, 44*(3), 189-195.

Roe, B., Teisi, M. F., Levy, A. S., Boyle, K., Messonnier, M. L., Riggs, T. L., . . . Newman, F. M. (2001). Consumers' assessment of the food safety problem for meals prepared at home and recations to food safety labeling. *Journal of Food Products Marketing, 6*(4), 9-26.

Roosen, J. (2003). *Marketing of safe food through labeling.* Paper presented at the Emerging Roles for Food Labels: Inform, Protect, Persuade, Washington, D.C. March 20-21.

Ropicki, A. J., Larkin, S. L., & Adams, C. M. (2010). Seafood substitution and mislabeling: WTP for a locally caught grouper labeling program in Florida. *Marine Resource Economics, 25*, 77-92.

Rosbergen, E., Pieters, R., & Wedel, M. (1997). Visual attention to advertiing: A segment-level analysis *Journal of Consumer Research, 24*(3), 305-314.

Sandelowski, M. (1995). Sample size in qualitative research *Research in Nursing and Health 18*(2), 179-183.

Schindler, P. S. (1986). Color and contrast in magazine advertising *Psychology & Marketing, 3*(2), 69-78.

Schlag, A. K. (2010). Aquaculture: an emerging issue for public concern. *Journal of Risk Research, 13*(7), 829-844.

Schoormans, J. P. L., & Robben, H. S. J. (1997). The effect of new package design on product attention, categorization, and evaluation *Journal of Economic Psychology, 18*(2-3), 271-287.

Schupp, A., & Gillespie, J. (2001). Consumer attitudes towards potential country-of-origin labeling for fresh or frozen beef. *Journal of Food Distribution Research, 32*(3), 34-44.

The Leopold Center. (2004). Ecolabel value assessment phase II: Consumer perceptions of local foods. Ames, Iowa: Iowa State University.

U.S. Census Bureau. (2010). State and County QuickFacts Retrieved September 18, 2012

Umberger, W. J., Feuz, D. M., Calkins, C. R., & Sitz, B. M. (2003). *County-of-Origin Labeling of Beef Products: U.S. Consumers' Perceptions*. Paper presented at the Emerging Roles for Food Labels: Inform, Protect, Persuade, Washington, D.C.

United States Department of Agriculture. (2009). Mandatory County of Origin Labeling of Beef, Pork, Lamb, Chicken, Goat Meat, Wild and Farm-Raised Fish and Shellfish, Perishable Agricultural Commodities, Peanuts, Pecans, Ginseng, and Macadamia Nuts; Final Rule *Federal Register* (Vol. 7). Washington, D.C.: National Archives and Records Administration.

Valentino, L., Torregrossa, M. V., & Saliba, L. J. (1995). Health effects of mercury ingested through consumption of seafood. *Water Science and Technology, 32*, 41-47.

Verbeke, W., Sioen, I., Bruso, K., DeHenauw, S., & Van Camp, J. (2007). Consumer perception versus scientific evidence of farmed and wild fish: exploratory insights from Belgium. *Acquaculture International, 15*(2), 121-136.

Verbeke, W., Vonhonacker, F., Sioen, I., Van Camp, J., & DeHenauw, S. (2007). Perceived importance of sustainability and ethics related to fish: A consumer behavior perspective. *Ambio, 36*(7), 580-585.

Wessells, C. R. (2002). The economics of information: markets for seafood attributes. *Marine Resource Economics, 17*, 153-162.

Whitmarsh, D., & Giovanna, M. (2011). Consumer behaviour and environmental preferences: a case study of Scottish salmon aquaculture. *Aquaculture Research, 42*(Supplement 1), 142-147.

Wilkins, J. L. (2002). Consumer perceptions of seasonal and local foods: A study in a U.S. community. *Ecology of Food and Nutrition, 41*(5), 415-439.

Wirth, F. F., Love, L. A., & Palma, M. A. (2007). Purchasing shrimp for at-home consumption: The relative importance of credence versus physical product features. *Aquaculture Economics and Management, 11*(1), 17-37.

Yin, R. K. (2009). *Case Study Research: Design and Methods, 4th Edition*. Thousand Oaks, CA: Sage Publications.

Zepeda, L., & Leviten-Reid, C. (2004). Consumers' views on local food. *Journal of Food Distribution Research, 35*(3), 2-6.

Chapter 6:

Manuscript 2: Health, trade, or economics: Framing policy objectives in a cross-national comparison of news media coverage of Country of Origin Labeling for food

6.0 Abstract

Mandatory Country of Origin Labeling (COOL) has been controversial since its inception. The news media provide a prominent platform for debates around the aims and implementation of COOL. Stakeholders engage with the media to advance their own policy interests by providing quotations and position statements to construct the meaning of food labels and labeling policy. This study examined the framing of the objectives and aims of COOL in print news media drawn from three sociopolitical contexts: the U.S., Canada, and Mexico. A retrospective study of print news coverage was carried out, exploring coverage of COOL in 170 articles printed between the year 2000 – 2012. Food safety, trade, and marketing were framed as the key policy objectives for COOL. Food safety appeared in more than a quarter of headlines (n=31, 26.27%) and in nearly sixty percent of articles (n=68 57.63%), either alone or in conjunction with trade and marketing aims. The prominence of food safety frames differed by country but the elements constructing this frame were similar across countries. Food safety frames appeared largely in the context of discussions of contamination events and was described as having two functions: 1) as a traceability tool, assisting investigators in identifying the sources of an outbreak of food borne illness, and 2) a safety signal, alerting consumers to risky products. Stakeholder perspectives were integral in constructing the form and boundaries of policy frames. Food safety was most visible in the framing of COOL by consumer advocates and U.S. governmental representatives.

6.1 Introduction

Driven by growing demand in recent years for safer, more nutritious, and environmentally responsible food products, there is a growing desire among the U.S. public for information about their food. One way that food producers, marketers, and the government, have responded to this demand is through point-of-purchase labels. These labels, which may be mandated or voluntary, differentiate food according to nutritional characteristics, production practices, or the product's origin (Henneberry & Armbruster, 2003) (McCluskey & Loureiro, 2003). Labeling practices can have an economic impact by guiding consumers to purchase one product over another (Golan, Kuchler, Mitchell, Greene, & Jessup, 2001); therefore, the form and content of food labels is ardently debated among numerous stakeholders.

The news media provide a prominent platform for this debate. Stakeholders can engage with the media to construct the meaning of food labels and labeling policy by providing quotations and position statements. For strategic reasons, such as profit or political gain, interested parties involve the media in order to place boundaries around the range of information, such as details of the policy and its aims, and alternatives available to the public, including other policy options or options for voluntary regulation (Callaghan & Schnell, 2001). Reflecting these varied interests, the crafting and content of stakeholder messages within media coverage of an issue may change over time as policies develop, from advocacy to ratification and implementation. Indeed, control over media rhetoric is critical to garnering and maintaining support for one's position, as the media are the principal information source about diet, nutrition (Borra, Earl, & Hogan, 1998), and public policy (Callaghan & Schnell, 2001; Stromberg, 2001).

In this paper, we investigate competing media presentations of U.S. Country of Origin Labeling (COOL) for food. As written, the aims of COOL are not clearly defined. For this reason, among others, COOL is a contentious policy and has incited debate among numerous stakeholder groups including public health advocates, food industry representatives, and elected officials. Our analysis explores the extent to which media coverage of COOL is framed in terms of public health relative to other potential aims, how the presentation of policy aims may vary over time, and the role of stakeholders in shaping media framing. This study compares the framing of COOL in three different sociopolitical contexts: U.S., Canadian, and Mexican print news media coverage to explore the extent to which discussions of the aims and objectives of COOL vary according to political and market interests.

6.2 Background

6.2.1 Country of Origin Labeling – Authorization, Implementation, and Dispute

The United States introduced mandatory Country of Origin Labeling (COOL) through the 2002 U.S. Farm Bill (United States Department of Agriculture, 2009), requiring grocers to label unprocessed meat, seafood, produce, and certain nuts and legumes as to their origin. COOL was initiated for seafood in 2004 and, following multiple delays, final implementation of the labeling for meat and other covered commodities took effect on March 16, 2009. COOL is administered and enforced through the American Marketing Service under the United States Department of Agriculture (Agricultural Marketing Service, 2009).

The ratification and implementation of COOL have been controversial, inciting conflict between numerous stakeholders. For decades, a number of farmer and consumer

advocacy groups have pushed the U.S. Congress to take action for food origin labeling, arguing that consumers have a right to know where their food comes from and that such consumers would prefer domestic options to imported alternatives. Opponents of mandatory origin labeling, argue, however, that labeling would provide consumers with little benefit and would not warrant the cost of industry compliance (Jurenas & Greene, 2013).

Origin labeling for meat has been a particular source of conflict. U.S. meatpackers and processors, as well as food marketers and retailers have fought against COOL largely on the assertion that the policy may hinder business due to strained trade relations and onerous record keeping requirements. For similar reasons, COOL has met international resistance from Canadian and Mexican governmental officials, ranchers, and processors (World Trade Organization, 18 November 2011), countries that are key suppliers of the live cattle and hogs that are fed and processed in the United States. Indeed, less than one year after COOL took effect for meat, Canada and Mexico challenged the law through the World Trade Organization (WTO), claiming that it negatively impacts trade by biasing consumers against foreign meat. In a landmark ruling on November 18, 2011, the WTO declared COOL to be protectionist and in violation of global trade agreements (World Trade Organization, 18 November 2011). The United States has since amended the law to comply with the WTO findings; however, the exact requirements of COOL continue to be disputed and the WTO case may not be concluded before 2015.

6.2.2 Policy and the Media – Framing and Meaning Making

The news media provide a framework by which the public can make sense of complicated occurrences such as policy development and international laws. Through a

process of "emphasis, exclusion, and elaboration" (Tankard, Hendrickson, Silberman, Bliss, & Ghanem, 1991), the news media bring attention to and establish the boundaries around an issue by selecting issues for coverage, and defining issue attributes. In so doing, the media construct issue frames that serve to diagnose social problems, identify their causes, predict their effects, suggest treatments (McCombs & Ghanem, 2001), and provide a social and informational context for the issue (Tankard, et al., 1991).

The frame building process occurs through constant interplay between journalists and informative elites (Cooper, 2002; Gans, 1979; Snow & Benford, 1992; Tuchman, 1978). Frames are built out of organizational pressures, journalistic routine, and elite discourse (de Vreese, 2005). Most social and political issues are presented in reporting as variations on a course of action. For instance, Zaller (1992) describes alternative frames of oil drilling policy as consisting of economic costs and benefits, environmental impact, or U.S. sovereignty (Zaller, 1992). In this way, frames shape the discourse in political arguments and can influence social movements.

6.2.3 Constructing Policy Frames in News Coverage

A number of journalistic tools may be to put use in framing the news. The formulation of the article, lead, closing statement, and headline all have implications for defining the reported issue as do the selection and citation of sources. Headlines are a particularly salient framing devise by which to establish readers' expectations about the topic and make links to other issues, events, and concepts. Within the article text, the lead and closing statements then establish the newsworthiness of the topic and suggest a perspective through which to view the reported event (van Dijk, 1985).

Stakeholders can also play an important role in framing policy issues in news coverage. In this context, we use the word "stakeholder" to describe the multiple groups and individuals involved in the policy-making process that "stand to win or lose as a result of policy decisions" (Lyons, Scheb II, & Richardson, 1995). Interest groups and political elites engage with the media in an effort to influence policy debates. In doing so, these players compete against one another to gain prominence in reporting (Cigler & Loomis, 1995). This jockeying is typically characterized by a high level of conflict as interest groups and politicians attempt to promote their specific policy message. The media then select from the rhetoric and messaging offered by stakeholders to frame policy aims and objectives (Callaghan & Schnell, 2001). The more frequently a particular stakeholder group is referenced relative to those with conflicting interests, the more prominently their issue definitions are featured relative to competing frames (Miller & Riechert, 2000).

6.2.4 Summary

Through framing, the news media can have a considerable impact on the direction of public policy. A large body of evidence demonstrates the power of the media to influence public opinion and political outcomes. By deciding which issues to cover, the media play a prominent role in setting the public agenda (Iyengar & Kinder, 1987; MacKuen, 1981; McCombs, 1981). In covering public policy, journalists must decide which features to emphasize over others and may thus influence public perceptions of a policy's goals, outcomes, and overall usefulness. Together, these decisions can impact policy support among citizens and political elites alike (Callaghan & Schnell, 2001; Nelson & Kinder, 1996; Terkildsen & Schnell, 1997). Therefore, the potential effects of

media framing of COOL are twofold: 1) Media coverage of COOL may heighten visibility of the label in stores and framing may influence consumer perceptions of the meaning and utility of the label. 2) Media frames may impact implementation of the labeling program moving forward, particularly given the contentious political context in which the policy was formed and is now being contested.

6.2.5 Study Overview

COOL is a policy with relevance across a number of domains yet lacks defined aims. The goal of the law as written is to "inform consumers" about their food purchases (Agricultural Marketing Service, 2009) with no further specification; therefore, the meaning ascribed to the label and the aims of mandatory COOL are open for interpretation. This allows for numerous stakeholders to weigh in and vie for the opportunity to establish boundaries around COOL, its purpose, and goals. This article compares the framing of COOL among news sources representing three sociopolitical contexts: U.S., Mexico, and Canada. These countries were chosen for their interest in the form and fate of COOL. The following questions guided our analysis: Comparing by country,

1. How is health called upon across the three sociopolitical contexts?
2. In what ways do the media frame COOL as fulfilling health-related aims relative to political or commercial goals?
3. How are stakeholder perspectives called upon in constructing policy frames in news coverage of COOL?

a. In what context are health experts called upon to as sources in news coverage of COOL and to what extent are health-related arguments employed in constructing issue frames?

4. To what extent, and in what ways, do policy frames vary over time?

The message frame(s) that dominate coverage of COOL provide insight into who is leading public policy debates around this issue and thus which groups have the potential to influence public opinion by gaining and maintaining control over how the policy are defined.

6.3 Methods

6.3.1 Sample Construction and Article Selection

This was a retrospective study of print news coverage of the United States' mandatory country of origin labeling (COOL) policy. The study sample was purposively constructed to capture a range of social, political, and economic arguments appearing in print news media discussions of the policy. This research includes a range of news sources from each of the three countries involved in the WTO dispute: the United States, Mexico, and Canada. Thus, the sample included both English- and Spanish-language news sources from the three countries. Articles printed between January 2000 and May 2012 were eligible for inclusion in this investigation. This time period captures the introduction and eventual passage of mandatory COOL (first for seafood in 2002, next for produce, nuts, and meat in 2009) as well as the initiation of and ruling on the WTO complaint.

Articles from English-language news sources were identified mainly through LexisNexus using the following search terms: (County of Origin) AND Label AND

((United States) OR (World Trade Organization)) AND (food OR meat OR produce OR vegetable OR fruit OR fish OR seafood). Additionally, we searched the ProQuest database for articles from the following sources, which were not accessible through LexisNexus: The Wall Street Journal, El Universal, La Jornada, and El Economista. For Spanish-language news sources, the following search terms were employed: (Etiquetado de Origen) AND ((Estado Unidos) OR (Organizacion Mundial del Comercio)) AND (carne OR res OR cerdo OR bovino OR frutas OR vegetal OR mariscos OR atun). A broader set of search terms was needed for Mexican archives in order to capture the full range of articles relevant to COOL in these publications.

After reading the articles to gain familiarity with the data, inclusion and exclusion criteria were applied to the dataset. Articles that did not discuss U.S. COOL were removed from the analytic sample along with any article focusing on consumables not covered by the law, such as alcohol or cheese. Further, articles that included only one sentence or less about COOL were not eligible for inclusion in this study. We also excluded articles focusing only on food imports with no substantive reference to COOL. Lastly, we narrowed our sample to contain only articles discussing domestic political disputes over COOL or those covering international trade disputes in which COOL is a central concern.

6.3.2 Codebook Development

The coding scheme for the news content was developed through an inductive, iterative process, involving multiple readings of the dataset by the lead author using guidelines established by (M. B. Miles & Huberman, 1994)). While initial codes were predetermined in accordance with the research questions presented in the introduction,

reading and coding several subsets of documents formed the majority of the codebook. First, text-specific codes were developed to reflect the verbiage of the documents in order to assure that the codebook reflected the data. Next, codes were compared to establish broader themes and patterns. These themes were then reviewed and refined through multiple readings of the dataset by the lead author. Through this iterative process, the coding scheme was refined to focus on key issues related to the framing of COOL, including the political debate surrounding COOL, opinions expressed by stakeholder groups, and the relevance of the policy to health and environmental concerns relative to economic and trade considerations. The coding variables included: Headline (verbatim); Date of publication; News source; Policy objective(s); Key stakeholders cited or discussed in the article.

For articles drawn from Mexican newspapers, a second coder - a native Spanish speaker – was called upon to specify the codebook development for this set of documents. In consultation with the lead author, the second rater adapted the predetermined codes to Spanish and assisted in developing text-specific codes through an iterative reading of the dataset. Both the lead author and the second rater then applied the codebook to articles drawn from the Mexican papers and interrater reliability was assessed using a kappa statistic. Kappa scores ranged from 0.86 to 0.89, indicating strong overall agreement. All other articles in the dataset were coded, and analysis conducted, by the lead author.

6.3.3 Analysis

A mixed-methods approach guided the analysis. We first performed a quantitative content analysis where we assessed the volume of coverage and identified recurrent

themes (Altheide, 1996b), by country and over time. Each code was assigned a numerical value (either 0 or 1, indicating whether a trait was present or not) and subjected to descriptive quantitative analysis comparing by country. The following question guided this phase of analysis: To what extent does health appear as the prominent framing in headlines and in the article text? See below for analytic groupings of news sources.

United States	**Canada**	**Mexico**
- Associated Press	- Canadian Press Wire	
- Washington Post	- Globe & Mail	- El Universal
- Wall Street Journal	- National Post	- El Economista
- New York Times	- Toronto Star	- La Jornada

Where quantitative analyses served mainly to provide an overview of the volume of and trends in coverage across the dataset, qualitative techniques were employed to explore the nature and content of coverage across the dataset. We focused our qualitative analysis on the framing of COOL. Of particular interest was the framing of COOL in terms of public health relative to the trade or economic implications of the policy. The main question guiding this work was: How is health called upon across the three sociopolitical contexts? We then focused our analysis around the following set of questions: In what ways is health included in the aim or goals of the policy in headlines and in article text? Who is commenting on COOL as a health issue and what health arguments are being used to support the policy?

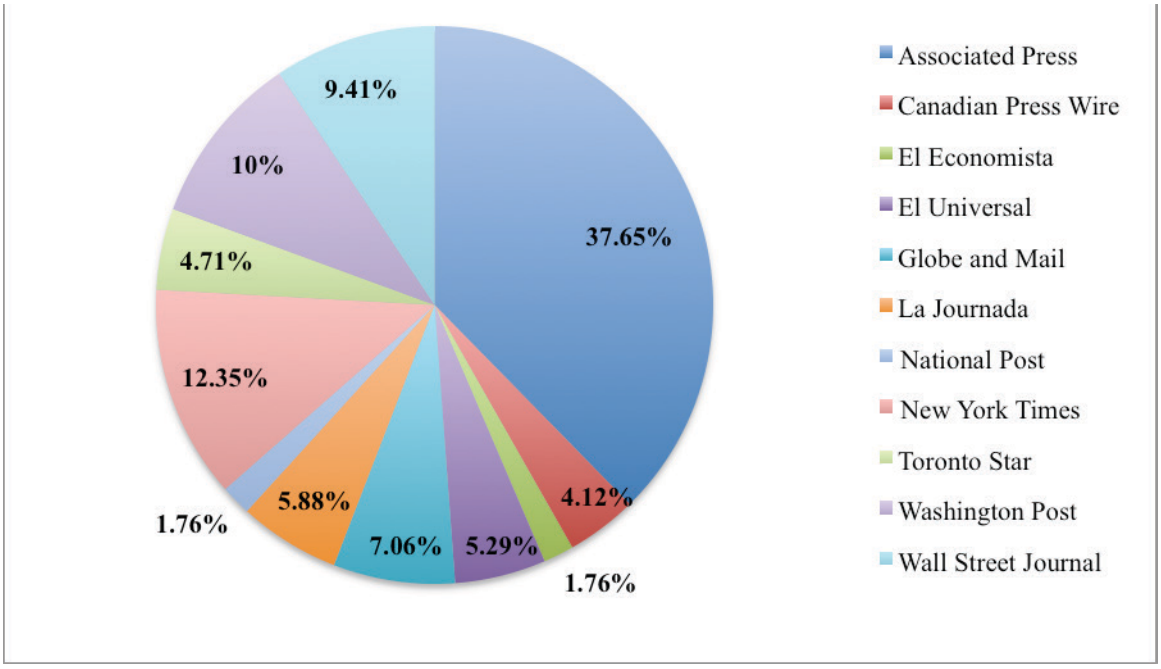
6.4 Results

6.4.1 Summary of Data

6.4.1a Volume of Coverage, by Country and News Source

The combined LexisNexis and ProQuest searches resulted in a total of 200 articles, of which 170 met the criteria for inclusion in this analysis. The majority of articles (n=118, 69.41%) appeared in U.S. news sources, followed by Canadian sources (n=30, 17.65%), and Mexican sources (n=22, 12.94%). Differences in the volume of coverage may be due in part to the greater number of news sources included in the sample from the U.S. and Canada. Comparing by news source, the Associated Press yielded the largest number of articles at 64 (37.65%), followed by the New York Times at 21 (12.35%) and the Wall Street Journal at 16 (9.41%). The fewest articles were drawn from the National Post and El Economista (n=3, 1.76%, respectively). An overview of the proportion of coverage attributable to each news source is provided in Figure 6.1.

Figure 6.1 Proportion of News Coverage, by Newspaper

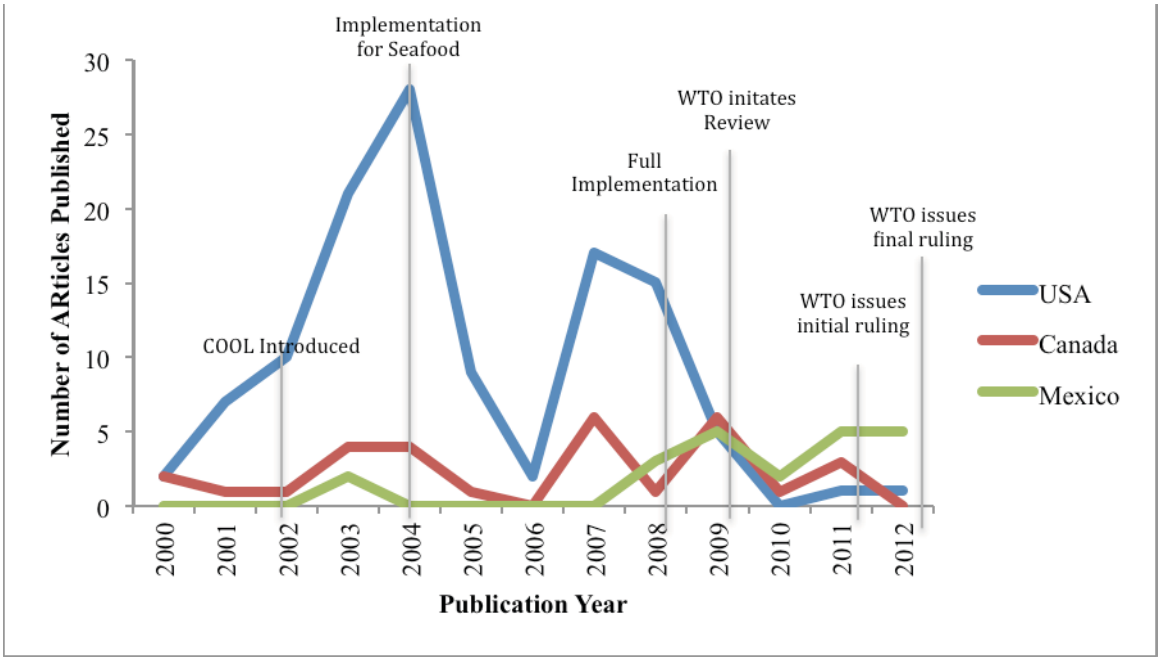


6.4.2b Volume of Coverage over Time

Just under half of the articles in the analytic sample were published between the years 2000-2004, covering the introduction of COOL to its passage for seafood (n=82,

48.24%). There was also sizeable coverage from 2005 to 2008, during which time COOL was under debate and up to its eventual passage for all covered commodities, including produce, nuts, and meat, in early 2009 (n=55, 31.18%). Fewer articles were published between the initiation of the WTO dispute in November 2009 and the final ruling on June 29, 2012 (n=34, 20%). (See Table 6.1 on page 96 for a summary of coverage, by time period.) As demonstrated by Figure 6.2, trends in coverage over time differed by country. A distinct bimodal trend was observed in U.S. coverage of COOL, with peaks in 2004 and between 2007 and 2009, corresponding to key events related to the implementation of the policy. Similar trends were observed in Canadian news coverage of COOL, such that the largest volume of articles was observed around implementation for seafood and again for meat; however, additional upticks in coverage were evident in relation to initiation of the WTO dispute. Lastly, Mexican news coverage of COOL was greatest following the expansion of the labeling requirements in 2008 through the WTO dispute ending in 2012.

Figure 6.2 Volume of News Coverage over Time, by Country



6.4.3 Media Frames

6.4.3a Framing COOL in the Headlines

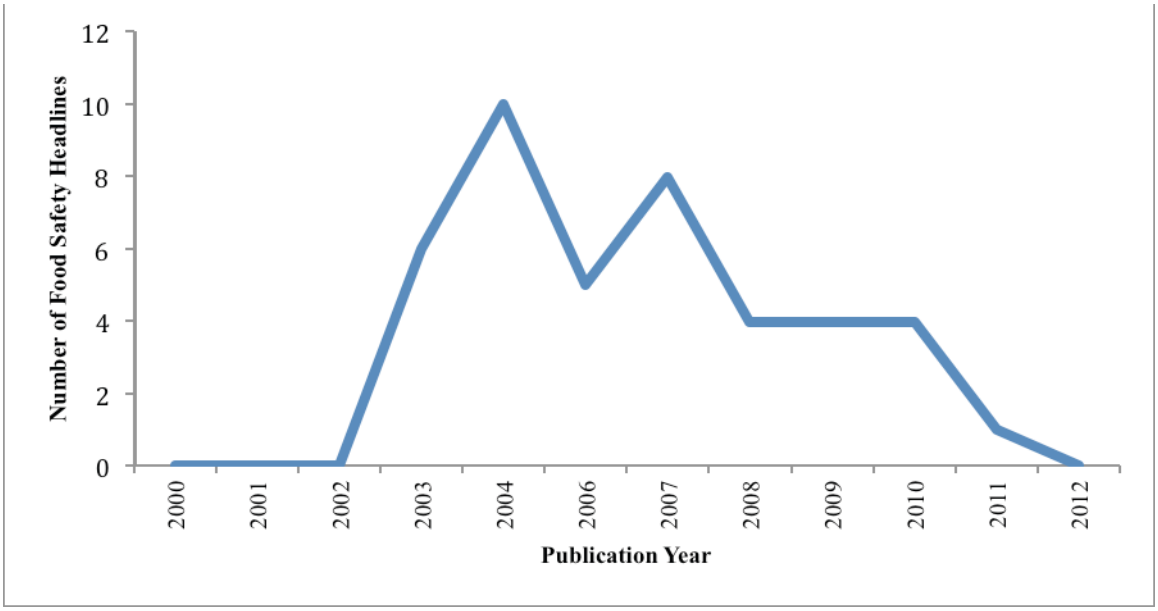
To assess the prominence of health concerns in reporting on COOL, we examined the frequency with which this topic appeared as a headlining issue relative to economic, trade, or political issues. The majority of headlines across the dataset featured topics related to U.S. politics, international trade disputes, or the potential economic impact of COOL. As depicted in Figure 6.3, food safety did not appear in headlines until after 2003, and remained visible throughout the implementation of COOL, dropping off at the end of data collection during the WTO disputes. Headlines focusing on health did so by positioning COOL in the context of food safety. Overall, nearly a quarter of articles featured food safety concerns (n=37, 21.76%) in the headline. Comparing by country, with a slightly higher proportion of U.S. new articles featured COOL in the headline compared to Canadian news coverage (n=31, 26.27% and n=6, 20%, respectively. Food

safety was not a salient issue in the headlines of Mexican news stories (n=0). (See Table 6.1.)

Table 6.1 Summary of Statistics, by Country

	Newspaper		
	U.S. N=118	**Canada** N=30	**Mexico** N=22
Time Period			
2000-2004	68 (57.63%)	12 (40%)	2 (9.09%)
2005-2008	43 (36.44%)	8 (26.67%)	3 (13.64%)
2009-2012	7 (5.93%)	10 (33.33%)	17 (77.27%)
Food Safety in Headline	31 (26.27%)	6 (20%)	0
Policy Frame			
Food Safety Only	35 (29.66%)	7 (23.33%)	0
Food Safety – Marketing	26 (22.03%)	6 (20%)	0
Food Safety - Trade	7 (5.93%)	0	13 (59.09%)
Safety –Trade - Marketing	5 (4.24%)	2 (6.67%)	2 (9.09%)
Stakeholders Cited			
U.S. Government	84 (71.19%)	10 (33.33%)	10 (45.45%)
Other Government	4 (3.39%)	8 (26.67%)	19 (86.36%)
Food Industry	54 (45.76%)	13 (43.33%)	11 (50%)
Farmers/Ranchers	46 (38.98%)	8 (26.67%)	7 (31.82%)
Advocates	34 (28.81%)	3 (10%)	4 (18.18%)

Figure 6.3 Appearance of Food Safety in Headlines for all Articles, Over Time



Taking a closer look at the text, U.S. headlines featuring food safety concerns positioned COOL in a range of roles and contexts that varied by time period. Early on, headlines featured COOL in the context of contaminated food and food borne illness, specifically focusing on mad cow disease. These headlines described the identification of mad cow disease in North American as the motivation for COOL:

- *Mad Cow Scare Revives U.S. Beef Label*, Associated Press, 1/7/2004
- *Mad Cow Case Heightens Debate on Food Labeling*, New York Times, 1/8/2004

In the intermediate timeframe, during implementation of COOL, headlines described the labeling scheme as a means to provide shoppers with more information about their food, such as the following:

- *Country of Origin: Should you know before you buy?* Washington Post, 8/22/2007
- *USDA to Meat Industry: Give Shoppers more Details,* Associated Press, 2/20/2008

Lastly, headlines featuring COOL later in data collection tended to specify a particular function for the label in terms of protecting food safety. These headlines discussed COOL as a traceability tool, a method for following food from production to purchase:

- *Tracing tomatoes from field to fork: a new system,* Associated Press, 7/25/2008
- *Now, you may never know where that broccoli has been,* Washington Post, 2/3/2009

In comparison, headlines appearing in Canadian news coverage about COOL focused almost exclusively on concerns about COOL directing U.S. shoppers away from Canadian food, fearing that COOL may act as a safety signal suggesting to customers that

Canadian products are of lesser quality than U.S. alternatives. The following two selections sum up these sentiments:

- *BSE has protectionist legislators, industry jumping on Buy US bandwagon (Canadian Press Wire, 3/5/2004)*
- *US legislators could side-swipe Canada with measures to protect food supply (Canadian Press Wire, 5/14/2007)*

6.4.3b Framing COOL in Article Text

Next, we examined the article text to assess the primary framing of the aims and goals of the policy. In coding, three primary policy objectives were found to dominate the coverage of COOL: Food safety, food marketing, and trade. Environmental aims were not visible in this sample of news coverage of COOL. The vast majority (90.59%) of articles identified at least one of these objectives for COOL. Articles that did not specify a policy objective were mainly news briefs or those focusing on the Farm Bill or U.S. Federal Budget. As presented in Table 6.1 (page 96), we evaluated whether food safety was featured as the primary aim or in conjunction with marketing or trade objectives. More than half of articles (65.29%) featured food safety in some capacity. In a quarter of articles (25.88%), food safety was the sole policy objective identified for COOL and an additional forty percent (39.41%) featured food safety in conjunction with either marketing or trade aims. Overall, food safety was the most visible as a policy frame in U.S. and Canadian news coverage of COOL (55.08% and 43.33%, respectively), but was not a salient issue among Mexican news articles. (See Table 6.1.)

The prominence of food safety frames differed by country but the elements constructing this frame was similar in U.S. and Canadian news coverage. Food safety

frames appeared largely in the context of discussions of contamination events and was described as having two functions: 1) as a traceability tool, assisting investigators in identifying the sources of an outbreak of food borne illness, and 2) a safety signal, alerting consumers to risky products. Articles describing the traceability potential of COOL pointed to the possibility that the label may aid public health professionals in tracing back an outbreak of food borne illness after it has occurred, as this quote from a New York Times article explained, "*The required record-keeping should also help in tracking any dangerous products back through the supply chain to the source of contamination*" (New York Times, 7/4/2007). The following excerpt from the Associated Press provided additional details with an example based on the 2008 salmonella outbreak in tomatoes imported from Mexico: "*The next time tomatoes are suspected of food poisoning, consumers may be able to tell investigators they bought only ones grown in a certain region, speeding the probe" (Associated Press, 9/29/2008).*

As a safety signal, COOL was described as a means to fill in gaps in monitoring policies and practices meant to protect U.S. consumers from the potential risks of imported foods, as described here: "*COOL aims to give U.S. consumers the "right to know" where their food comes from. The implication is that shoppers can avoid food illnesses by identifying "risky" foreign sources*." Toronto Star (7/20/2009). Certain countries were implicated as "risky" in reporting on COOL. Journalists explained the potential for COOL to protect consumers by allowing them to distinguish products from countries with a history of food safety violations or those associated with outbreak of food borne illness. Food from China was a particular concern: *"A law [COOL] has gone into effect that requires retailers to label the country of origin of certain food products.*

The aim is to allow consumers to avoid products from countries like China, where food safety has been a problem." (*New York Times, 10/08/2008*) As were products from Mexico:

> *"Country-of-origin labels are a way to help shoppers avoid food from countries with weak safety regulations, or those hit by a food scare. For example, several outbreaks of salmonella poisoning in the U.S. in recent years have been traced to cantaloupes from Mexico."* (Wall Street Journal, 06/26/2003)
>
> *"It's a law years in the making but timely, as China's milk scandal and the recent salmonella-tainted Mexican peppers prompt growing concern over the safety of imported foods"* (Associated Press, 9/29/2008)

Concerns about the safety of beef imported from Canada were particularly prominent among articles adopting a food safety frame following the 2004 discovery of Bovine Spongiform Encephalitis (BSE, or mad cow disease) in the U.S., originating from a Canadian herd. Indeed, the identification of BSE in the Unite States was presented in some articles as the impetus for moving forward with the full implementation of COOL, as demonstrated by the following excerpts:

> *"The issue [COOL] has become a food safety and consumer cause after the discovery last month of mad cow disease..." Wall Street Journal, 06/26/2003*
>
> *"And the discovery of mad-cow disease in a Washington state Holstein imported from Canada has energized demands to expedite country-of-origin labeling rules that would be delayed for two years under the budget bill." Wall Street Journal 01/16/2004*

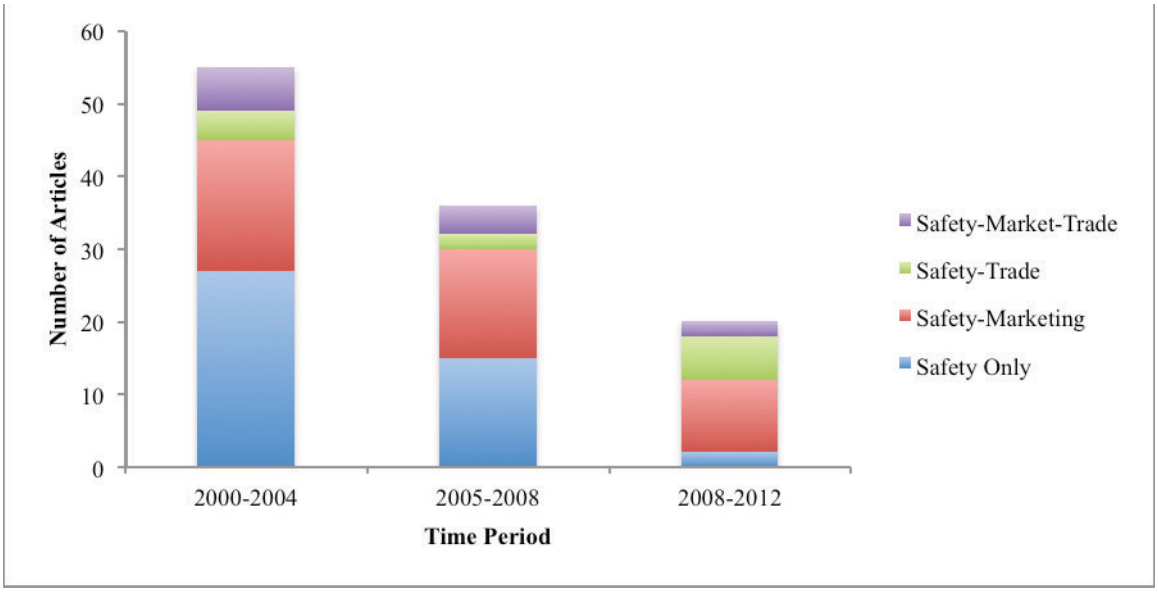
"The same experts point to several instances of mad cow disease in Canada as evidence of the need for stricter labeling." Associated Press 7/15/2007

As in the following excerpt, journalists described COOL as a means for consumers to identify risky beef from Canada: *"Country-of-origin label would have allowed U.S. consumers to avoid buying Canadian beef when the government there announced in May the discovery of a single cow with bovine spongiform encephalopathy, or mad-cow disease." Wall Street Journal, 06/26/2004* and for public health officials to trace contaminated meat to its source: "*The Senate minority leader, Tom Daschle of South Dakota, said he would call for the immediate financing of a program to require country-of-origin labels for American meat and produce, a step that many lawmakers said would have helped in the search for the origins of the infected cow." New York Times 1/7/2004.*

6.4.3c Framing over Time

Next, we assessed how the appearance of policy frames varied over time. As presented in Figure 6.4, the number of articles adopting a food safety frame either alone or in conjunction with marketing or trade aims decreased over time. This trend was particularly strong among articles identifying food safety as the sole policy objective for COOL. In contrast, the number of articles incorporating trade issues and/or marketing aims in combination with discussions of food safety remained fairly stable across time.

Figure 6.4 Framing of COOL in Article Text, by Time Period



6.4.4 Stakeholder Perspectives Cited

In coding, five stakeholder groups emerged: 1) the US government, comprised largely of legislators; 2) other governments, including non-US legislators or heads of state; 3) the food industry, comprised of representatives from large agribusinesses and meatpacking plants as well as marketers and retailers; 4) farmers and ranchers representing smaller-scale food operations; 5) consumer and health advocates. Most articles cited at least one stakeholder (n=148, 87.71%). See Table 6.1 (page 96) for a full summary of the stakeholder groups cited, by country.

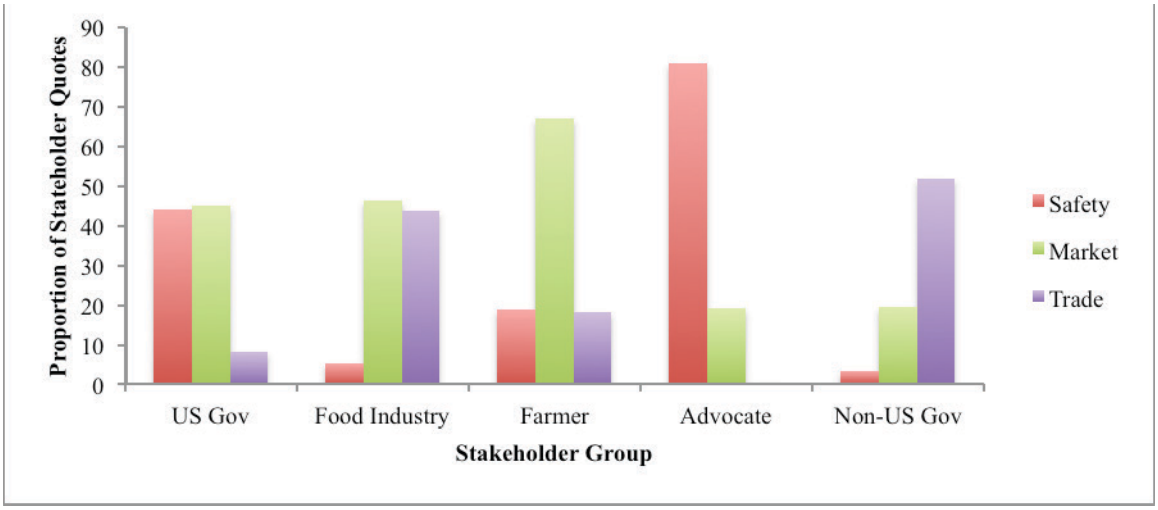
U.S. governmental officials were most frequently cited or quoted across the dataset (n=104), followed by food industry representatives (n=78) and advocates (n=41). Governmental representatives from Mexico and Canada were sourced least often (n=31). Comparing by country, U.S. news articles most often called upon quotes and perspectives from elected officials and food industry stakeholders in framing COOL policy objectives

(n=84, 71.19% and n=54, 45.76%, respectively). In Canadian news coverage, food industry representatives were most commonly cited, followed by U.S governmental officials (n=13, 43.44% and n=10, 33.33%, respectively). Governmental officials – both foreign and domestic - were the most common sources among Mexican news articles (n=19, 86.36% Mexican officials, n=10, 45.45% U.S. officials).

6.4.4a Role of Stakeholder Perspectives in Framing COOL

Stakeholder perspectives served as framing elements, constructing and validating the primary policy frames in each article. Of particular interest in this analysis was stakeholder support for COOL and the extent to which different sources called upon food safety claims in framing their response to origin labeling. As presented in Figure 6.5, support for COOL varied considerably by stakeholder group. Support was highest among advocates (91.49%) and lowest among Mexican and Canadian officials (3.22%). The appearance of food safety frames was associated with stakeholder support for COOL. Stakeholder groups who expressed greater support for COOL were also more likely to construct arguments around food safety concerns. Food safety was most visible among quotes from advocates, U.S. officials, and farmers (80.85%, 44%, and 18.83%, respectively). Food safety arguments were uncommon among perspectives cited from industry groups and representatives from Mexican and Canadian governments (5.13 and 3.22, respectively).

Figure 6.5 Stakeholder Framing of COOL



Consumer advocates commonly referenced food safety in framing the aims and objectives of COOL. Consumer stakeholders described COOL as a means for improving the safety and functioning of the food system as a traceability tool. The following quotes, for instance, from a consumer health advocate at the Center for Science in the Public Interest, describes the traceability potential for origin labeling as incentive for other countries to protect their food safety policies and programs:

> *"If people cannot trace a product back to a supplier, the supplier has no incentives to keep their processes as clean and effective, in terms of food safety, as possible." Associated Press 9/3/2007.*
>
> *"We do see it as an important step on the road to a more comprehensive system for tracing food items." Associated Press 9/29/2008*

Other advocates tended to promote COOL as a way of providing an informed choice between domestic and imported products without labels: "*At least with COOL, consumers can decide whether they want to buy meat imported from foreign countries." Washington Post, 1/11/2012.* Some pointed to COOL as a means for communicating safety and

process information, like the following: *"'Consumers should benefit because they could, for instance, avoid farm-raised shrimp from Southeast Asia, which can contain large amounts of "very strong" antibiotics,' said Caroline Smith DeWall, food safety director of the Center for Science in the Public Interest, a Washington-based advocacy group." Associated Press 10/1/2004.* Still others, described COOL as a means of fulfilling the public's "right" to information, underscored by contamination events and the outbreak of food borne illness:

> *"The mad cow scare only highlights this. Consumers have a right to know where their food comes from." New York Times 1/8/04*
>
> *"'Though concerns over Chinese imports are paramount right now, the concept extends beyond current controversies,' said Urvashi Rangan, a Consumers Union senior scientist and policy analyst. 'We see country labeling as basic information, just like the ingredient panel or nutrition label.'" Washington Post, 8/22/2007*

U.S. governmental representatives did not present as one single stakeholder group. In coding for stakeholder group, we noted the political affiliation of governmental officials quoted in news reporting, as identified in reporting. Support for COOL varied by political orientation as well as political interest, as did the salience of food safety in framing. Differences in framing were consistent over time, across political administrations. Republican stakeholders, for instance, did not typically refer to food safety concerns in discussing the aims and objectives of COOL. Rather, these stakeholders focused on the economic and trade implications of the policy, such as the following: "'*Everybody realized it was going to cost a lot of money, and ranchers were going to have to bear most of that,' said Sen Jim Talent, R-Mo."* Quotes from Democrats,

on the other hand, mirrored advocates' perspectives on COOL. Democrats called upon discourse around consumer rights and traceability to construct food safety frames relative to the discovery of mad cow disease in the U.S. In this context, COOL was described as providing consumers safety information and reassuring consumers about the safety of U.S. food in times of uncertainty:

> *"'At a time when one Canadian cow has raised questions about the safety of our meat supply, the 100 per cent American beef sticker would give Americans the information they need,' said Daschle, a South Dakota Democrat" Canadian Press Wire, 1/7/2004*
>
> *"'With the case of mad cow disease in Canada threatening to kick the legs from under consumer confidence in beef, this is irresponsible,' said Johnson (D-S.D.), who pushed to add the labeling program to last year's farm bill. 'The subcommittee should think about whether they are representing Canadian ranchers or American consumers.'" Associated Press 6/19/03*

Similar to U.S. governmental sources, smaller scale ranchers and farmers did not present one unified perspective. Differences in framing were evident between the U.S., Mexican, and Canadian farmers who were given voice in the coverage. The majority of small-scale producers, regardless of country, presented discussions of COOL around economic and trade issues. Food safety was not a relevant consideration among Canadian and Mexican farmers; however, U.S. producers pointed to the potential for COOL to serve as both a quality and safety signal, distinguishing "safer" domestic foods from "riskier" imported alternatives:

"'Producers will now have the opportunity to showcase U.S.-produced products which are produced and processed under the most demanding food safety system in the world,' the [Nebraska-based farm] group's, [Organization for Competitive Markets] president Fred Stokes said in a statement." Associated Press, 11/26/2002

"'Consumers could choose to add an extra layer of protection by choosing to buy an exclusively American beef product.' said Bill Bullard, chief executive director of R-CALF United Stockgrowers of America." Associated Press, 1/8/2004

In comparison to other stakeholders, neither food industry representatives nor representatives of the Canadian or Mexican governments called upon food safety issues in framing the aims and objectives of COOL. More often, these stakeholders framed COOL as an ineffective trade policy that would damage the economies of and hinder relations between the three countries. Indeed, some stakeholders in this category expressly countered the food safety frame for COOL, arguing that origin labeling is a marketing tool, not a food safety policy. Consider the following examples:

"'The country-of-origin provision contained in the farm bill is a targeted retail marketing tool, not a food safety or animal health program,' said Tim Hammonds, president and CEO of the [Food Marketing] Institute, an organization of retailers and wholesalers." New York Times 1/22/04

"'The political pressure to proceed, full tilt, with mandatory country-of- origin labelling in the [United States] I think will be that much greater, which is unfortunate,' a senior Canadian government official said. 'It's more or less

playing into the fear or the misperception that one product might be safer than another.'" Globe and Mail 9/16/2006

6.5 Discussion

Country of Origin Labeling comes at a time when more consumers are demanding information about the origin and safety of their food. Since its ratification, however, COOL has been the subject of debate and faced strong opposition from domestic and foreign stakeholders alike. While this policy is mainly informational in its intent (United States Department of Agriculture, 2009), previous research demonstrates that COOL may function as marketing strategy (Lagasse, Love, & Smith, 2014), and therefore, economic outcomes by directing consumers to choose domestic products over imported alternatives. Our research illuminates the nature of stakeholder debates as they played out in news coverage of COOL from the U.S., Canada, and Mexico. A particular focus of this investigation was the extent to which public health aims were highlighted in media framing of COOL objectives relative to economic or political goals. The media prominence of food safety as a COOL objective can have important implications for the future of the policy.

6.5.1 Extent of Coverage

One observation from this study may be that COOL was not actually a very newsworthy policy issue, with only 170 articles reporting on the policy across ten years and the eight sources included in this analysis. Coverage was tied to key policy events, with the largest volume of news articles corresponding to the initial implementation of COOL for seafood and the debates surrounding the expansion of the labeling protocol to

cover meat. In comparison, the WTO investigation of COOL was not a particularly newsworthy event.

Trends in the relevance of food safety as a policy frame were similar, with articles adopting this frame appearing earlier in the analytic period and dropping off after full implementation of COOL. This is interesting as it may suggest the relevance of food safety as an advocacy argument pushing for the adoption, implementation, and expansion of the labeling requirements. Our findings suggest, then, that the salience of food safety as a policy objective may vary with the stages of policy development.

6.5.2 Framing COOL Policy Aims: Food Safety

Though coverage prioritized the political and trade relevance of COOL, food safety aims were visible in a slight majority of articles either alone or in conjunction with marketing or trade objectives. Our analysis revealed differences in the salience of food safety aims by country and over time, as well as distinct variations in the framing of those aims among interviewed stakeholders. Comparing by country, COOL was most often described in terms of food safety among articles drawn from U.S. and Canadian news sources and in citations from U.S. government or consumer health advocates.

Across the dataset, food safety objectives were largely positioned relative to outbreaks of food borne illness, suggesting secular ties between the framing of COOL and historical events. The 2004 discovery of mad cow disease in the United States was the most visible of these contamination events, and a majority of articles discussing food safety-related aims did so in the context of discussions about the potential risks associated with cross-border cattle trade. Indeed, the U.S. outbreak of mad cow disease - originating from a Canadian herd - was often presented as a key argument for adopting

COOL in the midst of political controversy surrounding the policy. The focus on mad cow disease is notable given the relative rarity of this disease compared to other food-borne risks and may reflect journalistic tendencies for reporting on risk. Specifically, journalists tend to emphasize hazards that are novel, serious, and relatively rare.(Adams, 1992-1993). BSE fits these criteria.

Reporting on COOL identified two distinct roles for COOL designed to address such food risks: traceability tool and safety signal. These functions are increasingly relevant in light of rapid changes in technologies for food production, processing, and distribution, in a globalized food system (Popkin, 2006). Even if COOL does little to protect food safety directly, the label may assuage growing uncertainty among consumers about food safety (Brewer & Rojas, 2008; Kriflik & Yeatman, 2005; S. Miles, et al., 2004; Roe, et al., 2001).

Stakeholders were integral to the construction of the form and boundaries of the food safety frame. Quotes and perspective from consumer advocates and representatives of the U.S. government were most visible in constructing food safety as a relevant consideration in the aims and objectives of COOL. On the other hand, large-scale food processors and representatives from non-U.S. governments were more likely to define the goals of COOL around marketing or trade aims and often did so in a negative context. In all, these findings demonstrate how influential stakeholders employ the media as a platform for shaping public opinion and public policy in their own favor. These findings also reflect growing interest in food regulation among producer and consumer interest groups, with producers focusing on the cost of regulation and consumer advocates

interested in the role of food policy in effecting health issues (Iosling, Roberts, & Orden, 2004).

6.5.3 COOL: Connections to the Food System

While food safety was a prominent objective constructed in the framing of COOL, larger food systems concerns were absent from the discussion. Notably, none of the articles included in this sample of news coverage discussed potential for COOL to alter the environmental impact of food production and distribution. By identifying domestic products and signaling process conditions, COOL may direct shoppers to choose foods with lower food miles and those produced using more sustainable methods. Studies of consumer preferences suggest that shoppers prefer domestic and local foods, as these are perceived to have a lower environmental impact (Zepeda & Leviten-Reid, 2004) be higher in quality and safer compared to imported alternatives (The Leopold Center, 2004).

6.5.4 Limitations

This study has several limitations, many of which are linked to our decisions regarding sampling. First, our data were sourced from leading national papers from the U.S., Mexico, and Canada; however these articles were not randomly selected from a sample of all national papers from each country. We cannot, therefore, make inferences about the presentation of food safety in all newspapers. Further, we did not capture local newspapers. Framing may differ between regions. For example, coverage may vary in cattle- hog-producing regions. For this reason, we included two national news wires: the Associated Press and Canadian Press Wire to gain some indication of the spread of the story. Next, this study included only print news media, excluding weekly news

magazines, television, radio, Internet sources, as well as messages put out through independent communication campaigns. The primary focus of this study was to examine the extent to which COOL was framed in the news media as a public health-relevant policy. Future research may explore the nature of the broader public discourse around this policy. Finally, this is a descriptive study, presenting observable frames and trends in coverage without the possibility to explore the rationale underlying these observations or the ability to examine responses among readers and policy makers.

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References

Adams, W. C. (1992-1993). The role of media relations in risk communication. *Public Relations Quarterly, Winter 1992-1993*, 28-32.

Agricultural Marketing Service. (2009). Country of Origin Labeling (COOL) Frequently Asked Questions. Washington, D.C.

Altheide, D. L. (1996). *Qualitative Media Analysis*. Thousand Oaks, CA: Sage.

Boris Worm, E. B. B., 2 Nicola Beaumont,3 J. Emmett Duffy,4 Carl Folke,5,6 Benjamin S. Halpern,7 Jeremy B. C. Jackson,8,9 Heike K. Lotze,1 Fiorenza Micheli,10 Stephen R.

Palumbi,10 Enric Sala,8 Kimberley A. Selkoe,7 John J. Stachowicz,11 Reg Watson12 (2006). Impacts of biodiversity loss on ocean ecosystem services. *Science, 314*(5800), 787-790.

Borra, S. T., Earl, R., & Hogan, E. H. (1998). Paucity of nutrition and food safety: news you can use reveals opportunity for dietetics practitioners. *Journal of the American Dietetic Association, 98*(2), 190-193.

Brewer, M. S., & Rojas, M. (2008). Consumer Attitudes toward issues in food safety *Journal of Food Safety, 28*(1), 1-22.

Callaghan, K., & Schnell, F. (2001). Assessing the democratic debate: How the news media frame elite policy discourse. *Political Communication, 18*, 183-212.

Cigler, A. J., & Loomis, B. A. (1995). Contemporary interest group politics: More than "more of the same". In A. J. Cigler & B. A. Loomis (Eds.), *Interest Group Politics*. Washington, D.C.: CQ Press.

Cooper, A. H. (2002). Media framing and social movement mobilization: German peace protest against INF missiles, the Gulf War and NATO peace enforcement in Bosnia. *European Journal of Political Research, 41*, 37-80.

de Vreese, C. H. (2005). News framing: theory and typology. *Information Design Journal, 13*(1), 51-62.

Doos, B. R. (1994). Environmental degredation, global food production, and risk for large-scale migrations. *Ambio, 23*(2), 124-130.

Engels, S. V., Hansmann, R., & Sholz, R. W. (2010). Toward a sustainability label for food products: An analysis of experts' and consumers' acceptance. *Ecology of Food and Nutrition 49*(1), 30-60.

Gans, H. (1979). *Deciding what's news*. New York: Pantheon.

Garcia, M. A., & Altieri, M. A. (2005). Transgenic crops: implications for biodiversity and sustainable agriculture. *Bulletin of Science and Technology Society, 25*(4), 335-353.

Gleick, P. H. (1998). Water in crisis. *Ecological Applications, 8*(3), 571-579.

Golan, E., Kuchler, F., Mitchell, L., Greene, C., & Jessup, A. (2001). Economics of Food Labeling. Washington, D.C.: United States Department of Agriculture

Henneberry, S. R., & Armbruster, W. J. (2003). Emerging roles for food labels: inform, protect, persuade. *Journal of Food Distribution Research, 34*(3), 62-69.

Intergovernmental Panel on Climate Change. (2007). Climate Change 2007: Synthesis Report. New York, NY.

Iyengar, S., & Kinder, D. (1987). *News that Matters*. Chicago: University of Chicago Press.

Jenkins, M. (2003). Prospects for biodiversity. *Science, 302*(5648), 1175-1177.

Jurenas, R., & Greene, J. L. (2013). *Country-of-Origin Labeling for Foods and the WTO Trade Dispute on Meat Labeling*. Washington, D.C.

Kriflik, L., & Yeatman, H. (2005). Food scares and sustainability: A consumer perspective. *Ecology of Food and Nutrition, 7*(1), 11-24.

Kruess, A., & Tscharntke, T. (1994). Habitat fragmentation, species loss, and biological control. *Science, 264*(5165), 1581-1584.

Lagasse, L.P., Love, D. C., & Smith, K. C. (2012). County of Origin Labeling for seafood: An exploration of the information environment in Baltimore City grocery stores. *(in preparation)*.

Lyons, W., Scheb II, J. M., & Richardson, L. (1995). *American Government: Politics and Political Culture* (1st ed.). Stamford, CT: Wadsworth Publishing.

MacKuen, M. (1981). Social communication and the mass policy agenda. In M. MacKuen & S. L. Coombs (Eds.), *More than News: Media Power in Public Affairs*. Beverly Hils, CA: Sage.

McCluskey, J. J., & Loureiro, M. L. (2003). Consumer preferences and willingness to pay for food labeling: A discussion of empirical studies. *Journal of Food Distribution Research, 34*(3), 95-102.

McCombs, M. (1981). The agenda-setting approach. In D. D. Nimmo & K. R. Sanders (Eds.), *Handbook of Political Communication*. Newbury Park, CA: Sage.

McCombs, M., & Ghanem, S. I. (2001). The Convergence of Agenda Setting and Framing. In S. D. Reese, O. H. Gandy Jr & A. E. Grant (Eds.), *Framing Public Life: Perspectives on Media and our Understanding of the Social World* (pp. 67-81). Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

McMichael, A. J., Powles, J. W., Butler, C. D., & Uauy, R. (2007). Food, food production, energy, climate change, and health. *Lancet, 370*(Series on Energy and Healthy, #5), 55-65.

Miles, M. B., & Huberman, M. (1994). *Qualitative Data Anlysis*. London: Sage.

Miles, S., Brennan, M., Kuznesof, S., Ness, M., Ritson, C., & Frewer, L. J. (2004). Public worry about specific food safety issues. *British Food Journal, 106*(1), 9-22.

Miller, M. M., & Riechert, P. (2000). Interest group strategies and journalistic norms: news media framing of environmental issues. In S. Allan, B. Adam & C. Carter (Eds.), *Environmental Risks and the Media*. New York, NY: Routledge.

Neff, R., Chan, I. L., & Smith, K. C. (2008). Yesterday's dinner, tomorrow's weather, today's news? US newspaper coverage of food system contributions to climate change. *Public Health Nutrition*.

Neff, R. A., Parker, C. L., Kirshenmann, F. L., Tinch, J., & Lawrence, R. S. (2011). Peak oil, food systems, and public health. *American Journal of Public Health, 101*(9), 1587-1597.

Nelson, T., & Kinder, D. (1996). Issue frames and group-centrism in American public opinion. *Journal of Politics, 58*, 1055-1087.

New York Times. (2011). Japan Nuclear Crisis *Times Topics: Japan*.

Pauly, D., Alder, J., Bennett, E., Christensen, V., Tyedmers, P., & Watson, R. (2003). The Future of Fisheries. *Science, 302*(5649), 1359-1361.

Popkin, B. M. (2006). Technology, transport, globalization and the nutrition transition food policy. *Food Policy 31*(6), 554-569.

Roe, B., Teisi, M. F., Levy, A. S., Boyle, K., Messonnier, M. L., Riggs, T. L., . . . Newman, F. M. (2001). Consumers' assessment of the food safety problem for meals prepared at home and recations to food safety labeling. *Journal of Food Products Marketing, 6*(4), 9-26.

Snow, D. A., & Benford, R. D. (1992). Master frames and cycles of protest. In A. D. Morris & C. M. Mueller (Eds.), *Frontiers in Social Movement Theory*. New Haven, CT: Yale University Press.

Steinfeld, H., Gerber, P., Wassenaar, T., Castel, V., Rosales, M., & Haan, C. (2006). Livestock's Long Shadow: Environmental Issues and Options. *Rome, FAO*.

Stromberg, D. (2001). Mass media and public policy. *European Economic Review, 45*(4-6), 652-663.

Tankard, J. W., Hendrickson, L., Silberman, J., Bliss, K., & Ghanem, S. (1991). *Media Frames: Approaches to Conceptualization and Measurement*. Paper presented at the Association for Education in Journalism and Mass Communication, Boston, MA.

Terkildsen, N., & Schnell, F. (1997). Issue frames, the media and public opinion: An analysis of the women's movement. *Political Research Quarterly, 50*, 877-899.

Tuchman, G. (1978). *Making news: A study in the construction of reality*. New York: Free Press.

United States Department of Agriculture. (2009). Mandatory County of Origin Labeling of Beef, Pork, Lamb, Chicken, Goat Meat, Wild and Farm-Raised Fish and Shellfish, Perishable Agricultural Commodities, Peanuts, Pecans, Ginseng, and Macadamia Nuts; Final Rule *Federal Register* (Vol. 7). Washington, D.C.: National Archives and Records Administration.

van Dijk, T. A. (1985). Structures of news in the press. In T. A. van Dijk (Ed.), *Discourse and communication: New approaches to the analysis of mass media discourse and communication*. New York: W. de Gruyter.

Wolfenbarger, L. L., & Phifer, P. R. (2000). The ecological risks and benefits of genetically engineered plants. *Science, 290*(5499), 2088-2093.

United States - Certain Country of Origin Labelling (COOL) Requirements (18 November 2011).

Zaller, J. (1992). *The nature and origins of mass opinion*. New York: Cambridge University Press.

Chapter 7:

Manuscript 3: Food Safety and Personal Liberty: Presentations of Process Labeling in the Blogosphere

7.0 Abstract

The industrial model food system has created a complete transformation in interactions with and expectations around food production and consumption. While globalization and industrialization have resulted in some benefits to consumers, many current practices in food production pose risks to human and environmental health. With increasing concerns over food safety and environmental sustainability, consumers have demanded labeling indicating the processes by which their food was grown or harvested. Country of Origin Labeling (COOL) and labeling for genetically modified organisms (GMO) in foods represent two methods for informing consumers as to the methods by which their food was produced and harvested. These labeling schemes represent programs at different stages in development. Both labels have been fiercely debated between stakeholders resulting in considerable challenges to passing and maintaining these protocols. Online participatory media provide a visible platform by which these debates play out. This study examines blog coverage of COOL and GMO labeling on policy sites to assess the topics that draw the public to engage with labeling as a policy issue. Across the dataset, three key arguments emerged in advocacy for and against adoption of mandatory labeling programs. Those in favor of these policies framed their arguments around consumer protection and informed choice. In these contexts, labeling for origin and GMO was presented as a means for signaling food safety and as an issue of freedom of choice, respectively. Opponents to mandatory labeling countered these arguments by framing these policies as unscientific and unnecessary. While the

prominence and construction of these frames varied by blog and label type, the framing of advocacy arguments was largely consistent between bloggers and their readership.

7.1 Introduction

7.1.1 Background

The industrial model food system, developed and honed over the nineteenth and twentieth centuries, has created a complete transformation in human interactions with and expectations around food production and consumption. Operating at an economy of scale, the industrial food system is designed to maximize efficiency so as to increase production and lower consumer costs. In order to meet these requirements, food production is now centralized and heavily reliant on chemical inputs and crop modification using genetic engineering techniques (Nations, 2011). While the globalization and industrialization of the food system has resulted in benefits like a wider selection of food available at a lower cost, many practices in food production and transportation under this model pose risks to human and environmental health. Health risks include the fast and widespread dispersal of pathogens leading to food borne illnesses (Center for Science in the Public Interest, 2007), increased risk of allergies (Goodman et al., 2008), and proliferation of obesity and related conditions (Chopra & Darnton-Hill, 2004; Cutler, Glaeser, & Shapiro, 2003). Ecological impacts of current food production methods include environmental degradation, habitat fragmentation, and species loss (Kruess & Tscharntke, 1994) (S. Garcia & De Leiva, 2001; Richardson, 2009). With increasing concerns over the risks and tradeoffs associated with the global, industrial food production, widespread consideration of the processes for growing and harvesting food is becoming increasingly important in the operation of a healthy and sustainable food system.

In light of growing awareness about food risks, consumers are increasingly seeking information about food production, safety, and quality when making their purchasing decisions (Henneberry & Armbruster, 2003). To this end, food labeling is becoming an important tool to inform and influence consumers (Caswell, 1998a). Producers and retailers may choose to voluntarily label their products or they may be required to do so through governmental intervention. Most labeling is voluntary and highlights characteristics that are deemed marketable and attractive to consumers (Byrne, 2009; Caswell, 1998a; Henneberry & Armbruster, 2003). In contrast, the purpose of mandatory food labeling is first presented as being to prevent deception and, second, to help consumers make choices that fit their needs and preferences (Byrne, 2009). Mandatory labeling primarily requires processors and retailers to identify product ingredients or components, regardless of their market value (Byrne, 2009; Henneberry & Armbruster, 2003). Often, a combination of voluntary and mandatory approaches to labeling is in place (Byrne, 2009; Caswell & Padberg, 2002); thus the approach is not sufficient for a growing number of consumers who desire complete information about their food, including its origin and the methods used to bring it to market (Caswell, 1998a; Caswell & Mojduszka, 1996; Caswell & Padberg, 2002; Crespi & Marette, 2003; Gross, 2003).

7.1.2 Labeling for Process Attributes

Process attributes refer to a product's origins and its production methods. These are features that cannot be determined through prior experience with or examination of the product. Truthful labeling can translate such qualities into observable characteristics for consumers (Caswell, 1998a). In the U.S., few policies mandate disclosure of process

attributes through product labeling, though some marketers and retailers have opted to disclose these features through voluntary labeling. There is growing interest among consumer health advocates and interested members of the public in substantiating and regulating voluntary claims, as well as expanding mandatory labeling to cover a greater range of food production and processing methods (Byrne, 2009).

Regulators, consumers, and marketers all have a vested interested in the development and passage of mandatory labeling policies. Production methods may, for instance, affect other product attributes, such as safety and nutrition. In addition, food production is a relevant consideration for those concerned about its impacts on the environment, worker safety, or animal welfare (Caswell, 1998a). In sum, labeling can serve as a safety, environmental, or quality signal, alerting consumers to valuable product characteristics. In this role, process labeling may benefit marketers and consumers alike by identifying attributes that are of interest to consumers and for which they would be willing to pay (Byrne, 2009; Caswell, 1998a). In other cases, however, labeling may direct consumers away from certain products if the labels signal undesirable qualities. The potential impact of process labeling on consumer choices has been at the heart of conflicts over the adoption of mandatory labeling policies. Disagreements over the scientific and commercial basis for such initiatives have stalled, prevented, or reversed the adoption of mandatory labeling for process attributes (Byrne, 2009).

7.1.3 Country of Origin Labeling

Country of Origin Labeling (COOL) is one example of a federally-mandated policy requiring labeling for process attributes. Introduced through the 2002 Farm Bill and passed in full in 2008, COOL requires retailers to label unprocessed food as to its

origin, and for seafood, whether it was farm-raised or wild-caught. COOL was controversial even before its passage. Proponents of COOL advocated for the policy on the basis that it would benefit consumers by providing more detailed information about their purchases. Opponents of COOL, including representatives from the U.S. cattle and hog industries, as well as food marketers and retailers, contested the policy on the grounds that it would limit profits and negatively impact consumers through higher food costs (Lusk et al., 2006). For similar reasons, COOL met resistance from Canadian and Mexican hog and cattle traders, who challenged the law through the World Trade Organization (WTO). On November 18, 2011, the WTO ruled that COOL is in violation of global trade agreements (World Trade Organization, 18 November 2011) and the United States has since revised the law to conform to the WTO directives. However, the exact terms and conditions of the law have not been fully resolved as industry groups and trading partners continue to dispute the legality and relevance of COOL. Advocacy efforts on the part of consumers and other interested parties will therefore continue to be relevant in shaping the terms and conditions of the policy moving forward.

7.1.4 Labeling for Genetically Modified Organisms in Food

Mandatory labeling for genetically modified organisms (GMO) has also been a contentious policy issue. Although there is no federal mandate requiring labeling of GMO in food, numerous efforts have been made in recent years to pass labeling laws at the state-level. One of the first of these efforts was in 2002 on the Oregon ballot and has since been followed by ballot initiatives in at least 20 states. Indeed, public demand for labeling of GMO has been growing over recent decades. Supporters of mandatory labeling for GMO point to labeling laws in other countries (Davison, 2010) and concerns

about the potential health and environmental impacts of GMO in crops and food (Raab & Grobe, 2003). In contrast, opponents of mandatory labeling have contested legislative efforts on the grounds that a substantive difference has yet to be demonstrated between foods containing GMO and those that don't (Byrne, 2009).

Despite the lack of policy, certain food processors have met the demand labeling of GMO through the adoption of voluntary labeling protocols. Still, this move has proved insufficient to many consumer advocate organizations, such as the Center for Science in the Public Interest and Food and Water Watch, as they claim voluntary labeling fails to identify food containing GMO and does little to change processing practices in the long term. For these reasons, consumer health advocates tend to prefer mandatory labeling in order to insure uniformity in the format and application of product labels (Center for Science in the Public Interest, 2012; Food and Water Watch). In addition, there is growing evidence that governmentally-regulated labels are favored among members of the public and are perceived to be more credible and trustworthy than corporate or store-based tags (Caswell & Mojduszka, 1996; Grunert, 2002; Huffman, Rousu, Shogren, & Tegene, 2004; Roe & Teisi, 2007).

7.1.5 Public Engagement in Policy Making

The media are one platform through which stakeholders workwith one another to advance and challenge public policies and regulations. Both traditional (e.g., television and newspapers) and new media sources (e.g., blogs and social networking websites) have the potential to bring attention to controversial issues and frame expectations around potential responses. Where traditional news media may be more apt to reflect the rhetoric of dominant power structures, the "new media" have been theorized to potentially include

more diverse arguments and introduce radical frames to the national discourse (Woodly, 2008). Further, technological advances provide novel opportunities for public discourse. Through online forums, new media can facilitate interaction around an issue among members of the public as well as between media representatives and the public (Chung, 2008; Schultz, 2000). The audience is able, not only to read, but to actively respond to posts through engagement with one another online and, potentially, join one another in taking collective action (Rheingold, 2008). In this way, internet-based communication can build consensus, mobilize public opinion, and set the agenda for policy makers (Woodly, 2008). Therefore, the content and coverage of food labeling laws in the new media, in addition to the nature public discussion of these issues, can shed light on stakeholder opinions about the perceived need for and utility of such policies.

7.1.6 Study Overview

This paper focuses on blog coverage of mandatory COOL and labeling for GMO, with particular interest in the ways in which bloggers and their readers engage with labeling as a policy issue. The term "blog" is a truncation of the expression "web log" and refers to a website that provides commentary on a set of subjects. A typical blog site is comprised of discrete entries or posts, which often combine original text with images and links to webpages and other media related to the entry topic. An increasing proportion of blog readership has been directed at multi-author web logs, written by numerous authors and professionally edited (The Nielsen Company, 2011). Blogs are distinguished from other websites on the basis of their interactivity. A majority of blog sites allow visitors to leave comments and build networks between audience members (Gaudeul & Peroni, 2010; Mutum & Wang, 2010). In this analysis, I treated blogs both as

news sources, informing readership about the form and function of process labeling and as platforms for public interaction and engagement with policy-making. This study investigates the issues that draw people to engage with labeling and the ways in which bloggers and their readership construct, reinforce, refute, and disseminate advocacy arguments around mandatory labeling for process attributes. The following research questions guided this research:

Comparing across political orientation (liberal, moderate, and conservative) and by label type (COOL and labeling for GMO):

1) To what extent do mandatory labeling polices for process attributes prompt public engagement via direct comment?
    a. How salient is the issue of mandatory labeling among reader comments on blog posts about labeling for country of origin of and genetically modified organisms in food?
2) What issues draw bloggers and readers to engage with mandatory process labeling as a policy issue? How are these issues used to frame arguments in favor of or in opposition to mandatory labeling for process attributes?
    a. To what extent is the framing of advocacy arguments around mandatory process labeling in blog postings congruent with the framing of reader arguments?

7.2 Methods

7.2.1 Sample Construction and Selection of Blog Postings

This is a retrospective study of web media discussions about mandatory labeling for origin and GMO. The study sample was purposively constructed to capture discussions specific to these labeling policies across three sociopolitical contexts: moderate, liberal, and conservative. The following web media sources were sampled, reflecting each of these viewpoints, respectively: Politico, Real Clear Politics, National Review, Daily Caller, American Conservative, Huffington Post, Daily Kos, America Blog.

Any blog posting pertinent to GMO or Country of Origin labeling was eligible for inclusion in this research. Postings that included only one sentence or less about labeling for GMO and/or COOL, as well as those that focused on voluntary labeling rather than state- or federally-mandated labeling, were excluded from the sample. Eligible postings were identified through individual searches of the archives of each of the four weblogs. Separate searches were conducted for each label, using the following search terms:

(GMO OR (Genetically AND Modified AND (Organism OR FOOD) AND Label*)

((Country of Origin Label*) AND (Food OR Meat))

7.2.2 Selection of Reader Comments

As a means for assessing public engagement with COOL and labeling for GMO in food, this study also examined reader comments following blog postings. All comments following relevant blog posts were eligible for inclusion and were therefore read. Comments that did not explicitly discuss some form of process labeling were

excluded from this analysis. Of the 5,839 comments on the blog posts included in this sample 1,691 were excluded from analysis.

7.2.3 Codebook Development

The coding scheme was developed to address a priori research questions regarding the construction of arguments in favor of and in opposition to mandatory process labeling policies. For article posts, the coding variables included: Headline; date of posting; web source; support for labeling; advocacy frame; calls for action; and inclusion of links and directives. Coding for comments on article posts addressed public engagement around process labeling and congruence between comments and the original posting. Coding variables for comments included: Date; Labels discussed; Primary frame in comment; Whether or not the commenter is in favor of labeling; Motivation for commenting (respond to another commenter, elaborate on blog post, refute blog post, advocate for response); Indicators of engagement (sparks response from others, includes call to action or links to outside sources); and Number of responses to comment. A single rater, the lead author, applied the codebook to the dataset.

7.2.4 Analysis

I conducted a mixed methods analysis, first performing a quantitative content analysis using Stata v. 12 (StataCorp, 2011) to establish recurrent themes in coverage and determine differences by political orientation and label type in: 1) public interest in these policies and 2) the framing of arguments in favor of and in opposition to mandatory labeling. Using logistic regression, I compared across political orientation and by label type to assess differences in: 1) overall support labeling in both postings and comments, 2) the framing of arguments in favor of and in opposition to mandatory labeling both in

blog postings and in comments, and 3) the use of calls to action in blog postings as a means for engaging the public. I used ANOVA to further assess public engagement by comparing differences by group in the mean number of total comments following blog postings, as well as the mean proportion of relevant comments, and the mean number of days discussions about process labeling continued in the comments following the original blog posting.

Next, I conducted qualitative analyses to explore the nature and content of arguments for and against mandatory labeling policies in both blog postings and comments. Using HyperResearch (HyperResearch 3.5.2, 2013) to conduct a thematic analysis (Altheide, 1996b) of blog postings and comments, I examined the ways in which blog authors called upon their readers to engage with labeling as a policy issue and the issues blog authors and commenters drew upon in arguing their support or opposition to mandatory labeling.

7.3 Results

This analysis first addressed the question of relevance of process labeling as a policy issue by assessing the volume of blog postings and reader comments on the subject labeling for food origin and GM status. Next, I assessed the topics and issues that drew bloggers and their readers to engage with mandatory process labeling as a policy issue through an analysis of the content of blog posts and comments. Finally, I examined the ways in which blog writers encourage their readers to engage with labeling policies through civic action.

7.3.1 Sample Overview

Our search of eight political blogs yielded a total of 105 postings, of which 79 were eligible for inclusion in this analysis. Postings excluded from this analysis focused on issues around food production and marketing, store-based labeling protocols, or broader political or trade tensions. The largest proportion of blog postings was drawn from liberal sites (n=57, 72%). (See Figure 7.1.) By far, the majority of postings appeared in two of the liberal sites: the Huffington Post and Daily Kos (n=34, 43.04% and n=18, 22.78% respectively). By comparison, the other six websites included in this sample yielded either 4 or 5 relevant postings each. (See Table 7.1 for a complete listing of postings by blog sites and label types.) Comparing across websites, the majority of postings were on the subject of labeling for GMO (n=62, 78.48%), compared to less than a quarter for COOL (n=17, 21.52%). (See Figure 7.2.)

Table 7.1. Sample Overview, Number of Blog Posts by Political Orientation and Label Type

Blog Site	Label Type		
	COOL (n=17)	**GMO (n=62)**	**Total (n=79)**
Moderate			
Politico	2 (11.76%)	3 (4.84%)	5 (6.33%)
Real Clear Politics	1 (5.88%)	3 (4.84%)	4 (5.06%)
Conservative			
National Review	0	4 (6.45%)	4 (5.06%)
Daily Caller	0	5 (8.06%)	5 (6.33%)
American Conservative	2 (11.76%)	2 (3.23%)	4 (5.06%)
Liberal			
Huffington Post	4 (23.53%)	30 (48.39%)	34 (43.04%)
Daily Kos	6 (35.29%)	12 (19.35%)	18 (22.78%)
America Blog	2 (11.76%)	3 (4.84%)	5 6.33%)

Figure 7.1 Proportion of Blog Postings, by Political Orientation

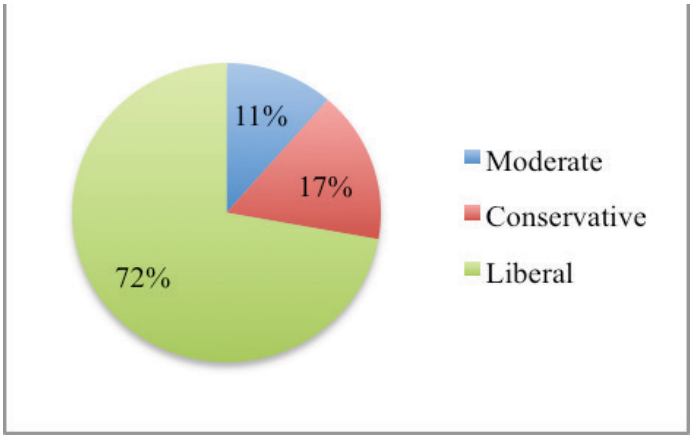
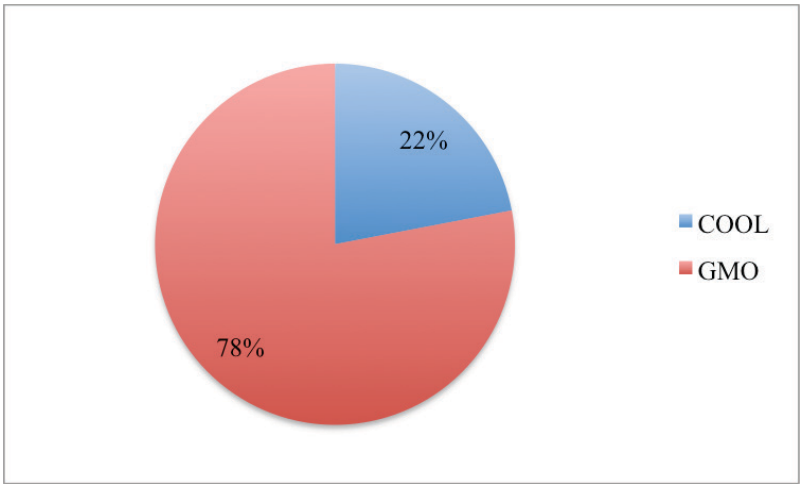


Figure 7.2 Proportion of Blog Postings, by Label Type

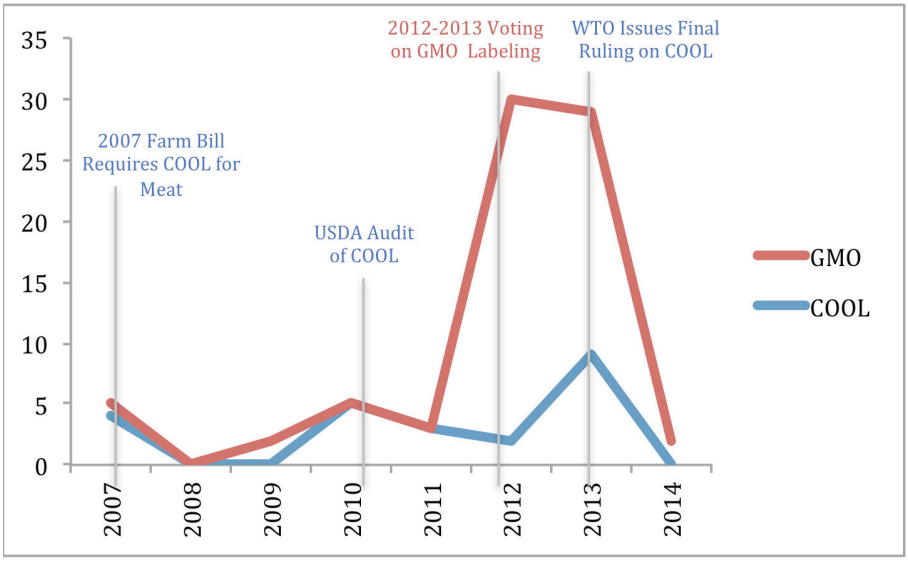


7.3.2 Blog Coverage Over Time

All blog articles in this sample were posted between 2007 and 2014. The majority of postings appeared in the years 2012 (n=36, 45.57%) and 2013 (n=31, 29.24%), corresponding with key policy development events for COOL and GMO labeling. (See Figure 7.3.) The blog posts I analyzed in this study were drawn from policy-oriented websites. Reflecting the nature of this sample, peaks in coverage were observed around policy-relevant events. For blog coverage of labeling for GMO, a single

peak was observed between 2012 and 2013, coinciding with voting on state-level initiatives for mandatory labeling. In comparison, several smaller peaks were observed in coverage for COOL - in 2007, 2010, and 2013, corresponding with full implementation of the policy and international trade disputes over the label, respectively.

Figure 7.3 Blog Coverage Over Time, by Label Type



7.3.3 Public Engagement with Mandatory Labeling in Reader Comments

Next, I recorded the volume of comments following each blog post in order to assess public engagement with the issue of mandatory labeling for process attributes. Across the dataset, an average of 93 comments (mode=35) were made per blog post (range: 0-1,405). The largest volume of comments was observed following blog posts on liberal sites and those on the subject of COOL. Due to the large variability in comments among individual blog postings, these comparisons failed to reach statistical significance. See Table 7.2 on page 132 details public engagement, by political orientation and label type.

7.3.3a Salience of Process Labeling Policies in Reader Comments

Taking a closer look at the comments following blog postings, I was interested in the salience of issues relevant to process labeling policies relative to other topics brought forth in this public forum. In addressing this question, I first compared the mean proportion of comments eligible for inclusion in this study (i.e., those that directly spoke to mandatory label for process attributes) versus those addressing extraneous topics, by political orientation and label type. Across the dataset, over seventy one percent of comments were eligible for analysis (n=4,148, 71.04%). Mandatory labeling policies appeared to be a more salient issue for readers of liberal blog sites and in comments following postings about labeling for GMO. Comparing by political orientation, more than seventy percent of the comments made on liberal blog posts were pertinent to process labeling policies (n=3,754, 72.91%), compared to fifty nine percent (n=252, 59.56%) of comments for posts appearing on moderate sites and fifty three percent of comments following postings on conservative blog sites (n=142, 53.27%, p=0.02). In addition, a significantly greater proportion of comments on blog posts about labeling for GMO were relevant to mandatory process labeling, compared to those following posts about COOL (n=4,026, 73.50%n=122, 33.29%, respectively, P>0.001). (See Table 7.2.)

7.3.3b Duration of Public Interest in Labeling Policies in Reader Comments

As a second measure of topic salience, I assessed the duration of discussions about process labeling as indicated by the mean number of days across which relevant comments continued to appear following blog postings. (Findings for this analysis are reported in Table 7.2.) The majority of comments were made on the same day, or the day following, the blog post. The average duration of discussions of mandatory labeling in

the comments across the dataset was one day with a range of zero to fifteen days. Process labeling policies seemed to be least pertinent to readers of conservative blogs, as discussions following postings on these sites were significantly shorter (mean=0.52, range=0-4) than those on either moderate (mean=0.90, range=0-5) or liberal sites (mean=1.09, range=0-15 days). By label type, no significant differences were observed in the duration of discussions in the comments, though the range of days over which discussions of labeling policies persisted was greater among comments following postings for GMO versus those for COOL.

Table 7.2 Public Comments on Blog Posts: Volume and Duration

		Political Orientation			Label Type	
Comments	Total	Moderate	Conservative	Liberal	COOL	GMO
Mean (Range)	93 (0-1405)	64 (0-425)	18 (0-71)	115 (0-1405)	65 (0-353)	101 (0-1405)
Mean Proportion of Relevant	71.04%	59.56%	53.27%	72.91%*	33.29%	73.50%❖
Days since Posting (Range)	1 (0-15)	0.90 (0-5)	0.52** (0-4)	1.09 (0-15)	0.83 (0-4)	1 (0-15)

* P-val >0.05
** P val > 0.01
❖ P val >0.001

7.3.4 Issues Prompting Engagement with Process Labeling

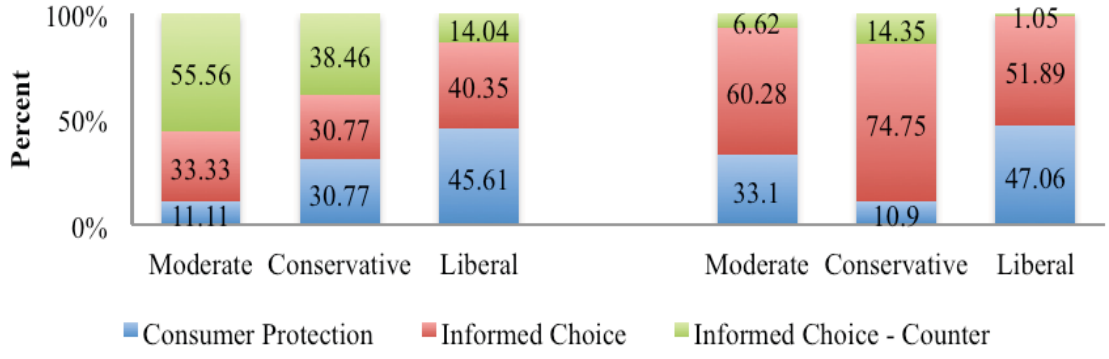
From here, I explored what the issues that compelled bloggers and their commenters to engage with process labeling as a policy issue. I conducted a frame analysis of both blog posts and discussions between commenters, examining the construction of arguments in support of and in opposition to labeling for origin and GMO status. In coding, three frames emerged: 1) consumer protection 2) informed choice, and

3) informed choice – counter arguments. Consumer protection arguments focused largely on food safety concerns related to food production where as informed choice arguments centered on consumers' right to information. Arguments countering the informed choice frame were based on the notion that process labels did not provide useful information, and therefore did not support truly informed choice. Figures 7.4 and 7.5 provide summaries of the prominence of these arguments, by political orientation and by label type in blog postings and among reader comments, respectively.

7.3.4a Consumer Protection Arguments in Blog Posts

Nearly forty percent of blog posts described mandatory process labeling in terms of consumer protection, as a means of guarding consumers against food safety risks. These protection-based arguments were common among blog postings on liberal websites (n=26, 45.61%) and conservative blog sites (n=4, 30.77%). In contrast, consumer protection was significantly less likely to appear in blog articles on moderate sites (n=1, 11.11%, $p<0.001$). Comparing by label type, consumer protection was more visible in blog posts advocating for COOL (n=8. 47.06%) compared to labeling for GMO (n=23, 37.10%), though this comparison did not reach statistical significance. See Figure 7.4 for a summary of blog posts adopting consumer protection arguments in framing mandatory process labeling as a policy issue, by political orientation and label type.

Figure 7.4 Advocacy Frames in Blog Postings and Reader Comments, by Political Orientation



In examining the text, advocacy arguments adopting a consumer protection frame were largely constructed around presentations of process labeling as a safety signal, alerting consumers to "risky" foods of suspect origin. Linking to highly visible food contamination events, such as mad cow disease, blog posts about COOL pointed to the potential for consumers to use the label as a means for avoiding suspect foods. In an overview of food labeling protocols, for instance, post on the liberal site, Daily Kos (2/15/2007), described COOL as a tool for consumers who may be "*concerned where [their] meat comes from due to mad cow or [they] are interested in the origin of [their] produce because of lax pesticide or food safety laws overseas*." Other postings expanded beyond the point of purchase to describe COOL as a traceability tool designed to help identify the source of an outbreak should a contamination event occur. Meat was framed as the riskiest food, most in need of mandatory labeling, as demonstrated by the following: "*Meat labeling is a public health issue as the danger is that if there should be a pathogen outbreak from meat ingestion its very difficult to trace the origin or even the country of the suppliers if it's not labeled" (Daily Kos, 12/9/2013).*

The idea of traceability was an important issue for blog postings highlighting especially "risky" countries of origin – those with a history of food safety problems. Canada and China were highlighted as particularly dangerous countries. In postings about COOL, mad cow disease was a particularly useful issue for bloggers arguing in favor of mandatory labeling. In these posts, bloggers singled out Canada, pointing to the 2012 discovery of mad cow disease in the country, as a striking example of the potential risks associated with imported foods. The following except from the liberal site, the Daily Kos summarizes this argument: "*The [label] is essential to protecting consumers whenever specific health and safety problems arise that may be linked to imported foods. Risks include Mad Cow disease in Canada and Europe*" (*Daily Kos, 8/20/2008)*. In addition, China was featured as a particularly risky origin. Following the 2013 decision to allow the processing of U.S. chickens in China, blog posters expressed concern about the resulting safety of poultry sales in the U.S. because these products would not be subject to mandatory COOL. In these postings, safety concerns were employed as a means for arguing for the expansion of labeling requirements, as summarized by the following excerpt from the conservative site, American Conservative: "*You'll probably be concerned about safety issues as China does not have the best reputation in that department. ...And because the poultry will be processed, it will not require country of origin labeling." (American Conservative, 9/9/2013)*

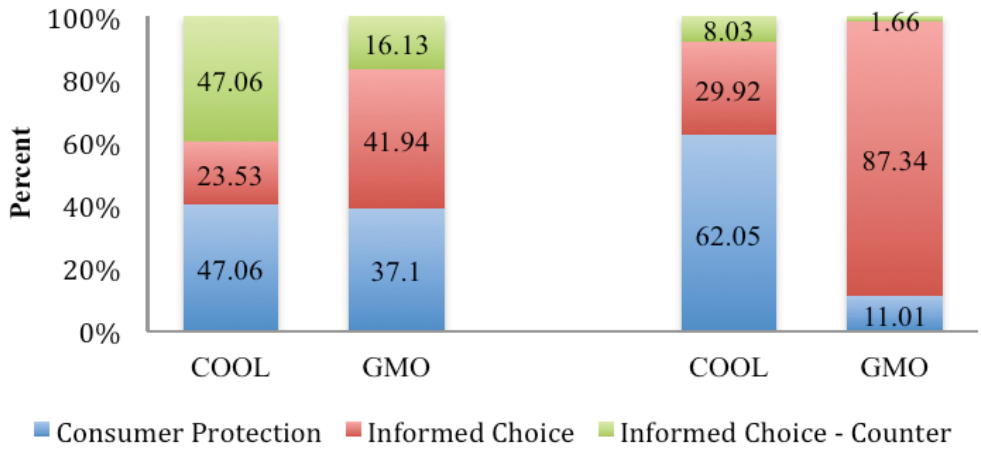
In sum, blog articles adopting a consumer protection frame pointed to the potential for mandatory labeling to ameliorate food safety concerns by alerting consumers to foods of "risky" origin. Risk was determined by previous food safety

breaches. Consumer protection was not a prominent frame among blog postings about labeling for GMO.

7.3.4b Consumer Protection Arguments in Reader Comments

Also of interest in this investigation was the degree to which the arguments framed in blog postings were reflected in readers' comments. A minority of readers adopted consumer protection arguments in their comments (n=827, 14.16%). As with blog postings, consumer protection arguments were significantly more prominent among comments appearing on liberal blog sites (n=2,423, 47.06%), compared to comments on postings on moderate (n=140, 33.10%) or conservative (n=29, 10.90%, p<0.001) blog sites. In addition, consumer protection was a significantly more visible frame among reader comments on blog postings about COOL (n=224, 62.05%) compared to those on the subject of labeling for GMO (n=603, 11.01%, p>0.001). Figure 7.5 provides a comparison of the proportion of reader comments adopting consumer protection arguments.

Figure 7.5 Advocacy Frame in Blog Postings and Reader Comments, by Label Type



Similar to blog postings, consumer protection arguments in comments focused

primarily on concerns about risky food origin. Unlike blog postings, commenters also adopted a consumer protection frame to describe process labeling as a means of signaling seemingly risky technological processes associated with GMO. Exploring consumer protection frames around food origin labeling, readers expressed particular concern about food imported from China. Commenters adopting a consumer protection frame cited both general concerns about safety regulations in China and pointed to specific failures in Chinese food safety management. The range of perspectives constructing the consumer protection frame is demonstrated through the selected comments from moderate and liberal blog sites:

> "*The American people should and must know where their food is coming from. Especially if it's coming from China with little to no food regulations and the potential of wide spread outbreak of disease." (Politico, 8/26/2013)*
>
> *"No, China has been oddly exempt from [COOL]. I found that exceptionally troubling, considering how their chicken dog treats killed many dogs a year ago." (Politico, 8/26/2013)*
>
> *" I have really started to read labels and am shocked to the degree that many food products do come from China and overseas. This is not good. Again it is all about corporate profits and it affects our lives on a daily basis. Corruption in DC makes a difference in what is in dog food, children's toys or in mushrooms." (Daily Kos, 11/07/2007)*

In all, readers adopting a consumer protection frame to comment about COOL did so to advocate for stronger labeling for food origin, arguing that such policies would help consumers to identify and avoid potentially harmful products.

In addition to concerns about origin, commenters discussed worry about GM technology in constructing protection-based arguments in favor of mandatory labeling. Few commenters pointed to specific concerns regarding the safety risks of GMO in food. Those who did, highlighted the potential negative impacts on human health, such as the following selections from conservative and liberal blog sites:

> *"Why is the FDA not all over this? Have they rolled over? We worry about pesticides on our food, but don't worry about allergic or other reactions to genetically modified food? Why aren't the lefties all over this topic? In this case, I would have common cause with them to demand inquiry, analysis and disclosure."(National Review, 04/02/2013)*

> *"Everyone should read the finding of Professor Don Huber, a plant pathologist of 50 years standing, now Emeritus Professor at Purdue University.In his finding he has documented the effects GMO feed on animals including vast amounts of miscarriages, anti social behavior and deformities. GMO's in all forms must be labeled." (Huffington Post, 04/25/2013)*

More often, it was the lack of knowledge about the potential risks of GMO that sparked protection-based comments on blog posts about GMO in food. Many commenters pointed to a dearth of research demonstrating the safety of GM foods as a justification for requiring labeling. A number of comments pointed to labeling as a means for identifying and avoiding GM food and thus protecting consumers from unknown risks, such as the following conservative and liberal blog sites:

> *"My concern with genetically modified foods is not with the idea of genetically modifying the foods. It's concern over when and how such things are*

deemed "safe" – so safe that experiments aren't necessary, and can be skipped; let's just introduce the new technology into our ecosystem/food supply/whatever. I oppose any science being used to conduct experiments of any sort on population-wide levels. This food should be labeled so we can avoid it." (National Review, 3/9/2013)

"It's about time. When studies about GMOs keep appearing that show how dangerous it is, it's finally time to label it so that people can stay away from it!" (Huffington Post, 4/25/2013)

Still other commenters described process labeling as means of protecting consumers from unknown risks while navigating a compromise between lack of evidence of safety and lack of information about GM status:

"People should know whether or not they are buying and eating foods created with a new technology. After many years of this it will be much easier to tell what effects, if any, eating GMO foods have. Without labeling, it's a highly unethical public health experiment where the data will be worthless, because we can't tell who ate what." (Huffington Post, 11/8/2012)

"There is legitimate concern with GMOs. I feel that labeling is a fine compromise until more science has proved long term consequences are safe." (Daily Kos, 8/11/2013)

7.3.4c Informed Choice Arguments - Overview

The majority of blog posts (n=48, 60.75%) and reader comments (n=5,012, 83.99%) positioned process labeling within the context of informed choice. This frame took two forms. Nearly forty percent of blog postings (n=30, 37.97%) and over eighty

percent of reader comments (n=4,892, 83.79%) relied on arguments of informed choice to advocate in favor of mandatory labeling. In this context, bloggers and readers both suggested that such policies meet consumers' needs and demands for knowledge about the qualities of the food they are to purchase. In contrast, a small proportion of blog postings (n=18, 22.78%) and very few reader comments (n=120, 0.21%) countered informed choice arguments to oppose mandatory labeling laws as being unnecessary and uninformative.

7.3.4d Informed Choice Arguments in Blog Posts

Informed choice arguments in favor of mandatory labeling were similarly common across political orientation (see Figure 7.4 on page 132). Comparing by label type, a greater proportion of postings on the subject of labeling for GMO (n=26, 41.94% versus n=4, 23.53% for posts about COOL) called upon informed choice arguments in advocating for mandatory labeling. In this role, bloggers described the potential for process labeling to allow consumers to make food choices that reflect their nutritional needs and preferences, as summarized by the following from the liberal site, the Huffington Post: *"...there is an interesting aspect of the argument over labeling GM products that is centered upon our individual right to guide our own lives and make our own choices. When it comes to the most basic of human needs, the food that we eat should be our choice." (Huffington Post, 10/17/2012)* Most often, informed choice arguments in blog posts were constructed around the notion of a consumer's "right to know" about their food purchases. These arguments were constructed in direct opposition to federal standards, which limit mandatory labeling to processes and procedures that result in a material difference between products. The following excerpts from liberal and

conservative blog postings about labeling for GMO demonstrate this point:

> "*The debate hinges less on the question of "Are GMOs safe?" than it does on the question of 'Do consumers have a right to know what is in their food?'" (Daily Kos, 6/6/2013)*
>
> *"There is no evidence of which I am aware that such altered food is unsafe. Even so, some people don't want it in their bodies. Why not give them the information empowering them to make it so?" (National Review, 12/9/2011)*
>
> *"Even if GM foods are utterly safe, policy makers can decide people have the right to know so they can choose whether to put it on their plates." (National Review, 12/9/2011)*

In all, informed choice arguments advocating in favor of mandatory labeling were constructed around the notion that information is valuable in its own right, regardless of potential food safety implications.

7.3.4e Informed Choice Arguments in Reader Comments

Among reader comments, informed choice arguments in favor of mandatory labeling were most visible on conservative sites (n=235, 74.75% versus n=255, 60.28% moderate and n=1,986, 51.89% for liberal, $p>0.001$) and following postings about labeling for GMO (n=108, 29.92% versus n=4783, 87.34% for COOL, $p>0.001$). See Figure 7.5 on page 135 for a summary of informed choice arguments appearing in reader comments, by political orientation and by label type.

Distinct variations across political orientation were observed in our exploration of the construction of informed choice arguments in reader comments. Expanding upon the arguments presented in blog postings, commenters on conservative sites, in particular,

described informed choice in terms of personal liberty, such as the following form the conservative site, the Daily Caller: "*I do not believe it is the job of any government to tell me (or anyone else) what I (or they) may and may not eat. Give people information that lets them make informed decisions ... whether or not they choose to "eat liberally" (or "progressively") is up to them." (Daily Caller, 12/13/2010)*. Readers commenting on moderate and liberal blogs went further to explain that informed choice afforded through mandatory labeling would allow consumers to avoid certain food if they so desire. These arguments were particularly common among comments following blog posts about labeling for GMO, as demonstrated by the following selections from moderate and liberal blog sites: *"The notion that we shouldn't be allowed to know whether our food is GMO is absurd. Democracy, capitalism, and America are all about the freedom to choose. If I want to choose to avoid GMOs, I should have that right." (Politico, 10/26/2012)* Or more simply: *"Label it so we can all avoid it" (Huffington Post, 4/25/2013)*. These arguments were applied to avoiding foods of foreign origin as well, specifically food imported from China, as illustrated by the following comment: *"The consumer has every right and needs the ability to know where his choice of food originates. It's common consumer good sense. We've been reading labels quite a bit recently and we don't buy if we're not sure of the product. Especially China's!" (Politico, 8/26/2013)* Regardless of political orientation, commenters who framed their advocacy arguments around informed choice did so because they felt that labeling would meet their desire for complete information about the content and quality of their food purchases.

7.3.4f Informed Choice - Counter Arguments in Blog Postings

A minority of blog postings across the dataset countered the informed choice frame in constructing arguments opposing mandatory labeling for process attributes. Comparing by political orientation; however, counter arguments were fairly common among blog postings appearing on moderate (n=5, 55.56%) and conservative (n=5, 38.46%) sites. This frame was significantly less likely to be adopted by bloggers writing for liberal sites (n=8, 14.04%, $p>0.001$). Comparing by label type, a much greater proportion of blog postings on the subject of labeling for GMO directly countered informed choice arguments compared to postings about COOL (n=8, 47.06% and n=10, 16.13%, respectively), though this difference was not statistically significant. Figure 7.4 on page 132 provides a summary of these comparisons.

In this context, some bloggers described labeling, particularly for GMO status, as superfluous and anti-science. Interestingly, this frame was visible among both blog posts appearing on conservative and liberal sites. Bloggers who countered informed choice arguments were primarily argued that mandatory labeling policies lacked a scientific basis and would constrain technological advances in food technology, as illustrated in the following excerpt from the conservative site, Daily Caller: ***"****By proposing legislation that would require labels on genetically engineered fish, Rep. Rosa DeLauro (D-Conn.) illustrates perfectly why members of Congress deserve opprobrium, derision . . . and defeat. Her gratuitous bill not only illustrates ignorance of the context of genetically engineered foods in our diets" (Daily Caller, 10/28/2010)*. Other bloggers dismissed the informative role for mandatory labeling as being unnecessary. These arguments were constructed around the notion that labeling for process attributes is gratuitous and does

not function as a useful aid to consumers, as demonstrated by the following excerpts from the moderate site, Real Clear Politics, respectively: ***"****The problem is that Boxer's push to mandate labels for all GMO foods, unless they are exempted, is a recipe for information overload." (Real Clear Politics, 6/2/2013).* In sum, whether a commenter countered informed choice arguments by framing mandatory labeling policies as hindering science or as being excessive and unnecessary, these arguments were presented in opposition these laws.

7.3.4g Informed Choice Counter Arguments in Reader Comments

A small minority of readers countered informed choice arguments in their comments. Comparing by political orientation, counter arguments were more common among discussions following postings on conservative websites (n=38, 14.45% versus n=28, 6.62% for moderate and n=54, 1.05% for liberal, $p>0.01$) and for comments on postings about labeling for GMO (n=29, 8.03% versus n=91, 1.66%, $p>0.01$). Figure 7.5 on page 135 provides a summary of these findings.

Mirroring counter arguments observed in blog posts, reader comments in this category, regardless of political orientation, defined labeling for GMO specifically as being misleading and anti-science. Of particular concern was the lack of scientific evidence demonstrating a material difference in GM food, suggesting that labeling foods containing GMO would signal a distinction between products where one may not exist. These commenters feared that mandatory labeling would serve as an unwarranted warning, driving consumers away from GMO products unnecessarily. Consider the following examples drawn from the liberal site, Daily Kos:

"The FDA position is clear - they want labels to mean something - GM doesn't tell you that is materially different - the nutritional quality is the same - Someone who doesn't know what the effects of GMOs are will tend to assume that if they're labeled there must be something wrong with them. This hasn't been proven to be true." (Daily Kos, 11/7/2007)

"We only have mandatory labeling for things we know have effects. After decades of scrutiny by anti-GMO crusaders it is safe to safe to say generically GMO's have no known negative effects. Picking GMO's for mandated labeling IS ANTI-SCIENCE as it is targeting a particular agricultural method for no valid scientific reason. Just like we don't have labels stating "This corn was picked by a workers who's name starts with "M"". " (Daily Kos, 9/13/2013)

Some readers of conservative sites elaborated upon anti-science concerns comprising to describe mandatory labeling as a status issue. Commenters adopting this frame argued that process labeling, particularly labeling for GMO, did not provide the consumer with useful information. Instead, they posited, these labels are a means for demonstrating class membership or political affiliation. Consider the following selections from conservative sites, National Review and American Conservative:

"I also oppose GMO labeling because it really gives me no info about the safety or quality of an individual product. It is either an attempt to scare people or a way to advertise a person's moral superiority. It's useless" (National Review, 4/2/2013)

"*Labeling hysteria appeals to a trifecta of lefty personality traits: anti-corporateness, anti-modernism, and food snobbery." (National Review, 4/2/2013)*

"Labeling modified food is perhaps the biggest SCAM perpetrated on the American consumer. (sic) It tell you nothing about the food. The motivating factor is MONEY. If you are stupid enough to pay up for it, enjoy the same food we all eat - only YOURS are more expensive" (American Conservative, 9/5/2012).

Like bloggers, readers countering informed choice arguments in their comments did so in order to advocate against the adoption of mandatory labeling policies.

7.4 Discussion

With growing interest in the means and methods of food production, consumers are demanding comprehensive labeling of food (Caswell & Padberg, 2002). Point-of-purchase labels are both a regulatory and a marketing tool. In light of these dual roles, polices mandating labeling been strongly debated. The new media provide a visible platform for stakeholders to interact with one another to debate and advocate for or against the adoption of food labeling policies.

Of particular interest in this study was the relevance of process labeling as a policy issue, as well as public engagement with policy decisions impacting mandatory labeling. Differences in the visibility and salience of mandatory process labeling policies were observed both by political orientation and label type. Liberal blog sites featured more postings about mandatory labeling policies as compared to moderate and conservative sites. In addition, mandatory labeling was a more salient issue among the readership of liberal blog sites, as evidenced by a greater proportion of relevant comments following postings on liberal sites and the longer duration of discussions following postings. Previous research has found liberal voters to be more trusting of the government and more supportive of regulation in order to protect public health and

safety, as compared to conservative or moderate voters (Frewer, Howard, Hedderley, & Shepard, 1996b; Huffman, et al., 2004; Poortinga & Pidgeon, 2005). Our findings lend support to this growing body of literature, suggesting ideological differences may impact the perceived relevance of food labeling as a policy issue and as a regulatory tool.

Of the two policy initiatives under study here, labeling for GMO garnered more attention from bloggers and was also a more salient topic of discussion among commenters compared to COOL. These findings may reflect the relative public unease with agrobiotechnology and distrust of GMO in food (Bennet, 2003; J. L. Brown & Ping, 2003; Knight, 2009). Some among the U.S. population view GM foods as "unnatural," of "unknown consequences," "harmful," "controlled by others," and "risky" (Knight, 2009). Concerns about the risks involved in creating and ingesting GMO in food may have contributed to the greater interest in policy issues associated with labeling for these attributes. What's more, our findings may reflect differences the nature of public engagement with more established polices, such as COOL, versus emerging policies like mandatory labeling of GMO. Established policies may leave less room for debate, making them less attractive for discussions in the blogosphere. In comparison, policies that are under development may attract public interest in defining their terms, conditions, and applications.

In addition to our analysis of the volume and duration of public discussions of mandatory labeling policies, we examined the content of blog postings and reader comments to assess the framing and construction of advocacy arguments in favor of and in opposition to these laws. Advocacy arguments took on three frames: consumer protection, informed choice, and counter arguments to informed choice. These frames

were echoed in reader comments. Bloggers' advocacy arguments provided a contextual frame and established the readers' expectations around the aims of labeling policies and the meanings attached to process labels. Readers confirmed and elaborated upon these frames, a key finding given the growing relevance of comments in web-based engagement and participation. New research exploring online reading habits suggests that consumers commonly read comments in conjunction with articles and blog postings (smith, 2013) and that the opinions expressed through comments have the potential to influence readers' perceptions of the topics discussed in the blog article (Anderson, Brossard, Scheufele, Xenos, & Ladwing, 2013). What's more, commenting on blog articles may motivate readers to engage with a topic more deeply through dialogue and information sharing (Anderson, et al., 2013). Findings from this research may therefore suggest that consistency in framing of policy issues between bloggers and their readers may amplify the perspectives presented in blog postings.

The framing of advocacy arguments was largely consistent between bloggers and their readership. In both blog posts and reader comments, consumer protection arguments were framed around the notion that foods of foreign origin and those produced with GMO's are unsafe due to lacking regulatory structures and untested technologies, respectively. These concerns were most visible among blog posts and comments appearing on liberal sites and among those on the subject of labeling for GMO in food. Previous research has demonstrated sociodemographic differences in food safety-related risk perception, such that liberal voters are more likely to perceive risk in current models of food production, with particular concern over the potential public health and environmental impacts of genetic modification of crops (Dosman, Adamowicz, &

Hrudey, 2007). These fears are in direct contradiction with current standards for the adoption of mandatory labeling policies, which are established on the basis that a substantive difference can be demonstrated on the basis of processing (Byrne, 2009), the reasoning for this requirement being that labels may suggest a material difference where one does not exist. Findings from this study suggest that labels may reinforce perceived differences between products on the basis of their origin and/or production method while highlighting a tension between consumer preferences for information and the government's evidence-based requirements for labeling.

Echoing the arguments constructing the consumer protection frame, bloggers and commenters adopting informed choice arguments in favor of mandatory labeling policies did so on the basis that consumers have a "right to know" about the origin of their food and the methods by which it was produced. Some blog authors and their readers desired labeling based on fears about the potential risks associated with GM foods and distrust of biotechnology companies in mitigating and managing such risks. These findings substantiate previous research demonstrating widespread concern among the public about agrotechology and a growing desire for informed choice about whether to chance exposure to potential food risks (Knight, 2009). Previous studies examining consumer perceptions of labeling for origin and GM status (Strauss, 2006) suggest that consumers believe such labeling will promote choice (J. L. Brown & Ping, 2003; Knight, 2009) and provide consumers the information and opportunity to decide whether or not to make a purchase on the basis of their nutritional needs as well as their perceptions of product safety and quality (Byrne, 2009; Caswell & Padberg, 2002; Henneberry & Armbruster, 2003). Such studies have argued that even if consumers do not anticipate that the labels

would lead to avoidance of certain products based on their product attributes, they prefer to have the tools to make an informed decision at the point of purchase (J. L. Brown & Ping, 2003). In this study, demand for informed choice was present and prominent, particularly among readers, even when commenters did not feel that origin or production method would yield a difference in safety or quality between products.

Mandatory labeling was not without detractors in this sample of blog discussions. A minority of bloggers and commenters framed their arguments in direct opposition to the notion of informed choice. In contrast to both the consumer protection and informed choice frames, opponents of mandatory labeling for process attributes asserted that labels would only complicate and confuse consumers' decision making. In this way, those who opposed mandatory labeling were also focused on consumer rights but did view labeling as a means to protect these interests. Though this was not explicitly addressed in the commentary, bloggers and commenters who countered informed choice arguments tended to agree with federal labeling regulations, which require material differences to be demonstrated by production method prior to the adoption of mandatory labeling.

7.4.1 Limitations

This study has several limitations. First, one person coded all content. Though the co-investigator and other experts were consulted during the codebook creation, it is possible that different raters would vary in their assessment of the data and, thus, may not apply the codebook in the same manner. To address this concern, ambiguous codes were discussed with colleagues and all data were stored for review. Next, public interest in labeling for process attributes as a policy issue was low. Our study found only 79 eligible blog postings across eight websites and over ten years. Future research may expand up on

findings from this work through an analysis of online exchanges among stakeholders, such as labeling advocates or industry representatives. Last, this study does not account for bloggers' or commenters' motivations for engaging with issues related to labeling for food origin, GMO, or organic status, therefore limiting our ability to draw conclusions about why authors chose to frame process labeling as they did. Instead, the findings from this investigation reflect the informational context surrounding mandatory food labeling policies - without authors' interpretations, as blog readers would experience it.

7.4.2 Conclusions

Food safety and consumer rights were at the crux of advocacy arguments, both in support of and in opposition to mandatory labeling. Arguments around labeling in this sample of blogs and corresponding reader comments reflected a general uncertainty among the public with regard to the safety and security of the food system. Labeling was viewed as a way for consumers to take an active and informed role in protecting themselves and their families from potential risks from contaminated food. In addition, labeling was described as an essential component of the free market, allowing consumer choice to direct food production practices. Bloggers and consumers were aware of the potential for labeling to impact consumer behavior and; therefore, influence food production and distribution standards. In this role mandatory labeling for origin and genetic modification status were thought to have significance beyond the point of purchase. A notable minority of bloggers and their readers countered these claims, pointing to the lack of scientific basis requiring differentiation of products on the basis of either origin or genetic modification.

Findings from this research also have important implications for the role of new media outlets in shaping policy decisions. Participatory media are engaging the citizenry by providing a public venue for policy debates, allowing the public an opportunity to frame advocacy arguments, and engaging one another to take action (Coleman & Gotze, 2002). In this way, engaging in the media allows citizens to become shareholders, rather than mere consumers, of policy. This is a particularly important consideration for policies mandating food labeling, as these differ from other regulatory initiatives on the basis that policy makers can work with and respond to consumer demands regarding their implementation (Roe & Teisi, 2007).

References

Altheide, D. L. (1996). *Qualitative Media Analysis*. Thousand Oaks, CA: Sage.

Anderson, A. A., Brossard, D., Scheufele, D. A., Xenos, M. A., & Ladwing, P. (2013). The "nasty effect" online incivility and risk perceptions of emergine technologies. *Journal of Computer-Mediated Communication*.

Bennet, B. S. (2003). consumer preferences for genetically modified fish and seafood: An econometric approach *Thesis, Master of Science in Agricultural and Resource Economics*: Davis College of Agriculture, Forestry, and Consumer Sciences at West Virginia University.

Brown, J. L., & Ping, Y. (2003). Consumer pereption of risk associated with eating genetically engineered soybeans is less in the presence of a perceived consumer benefit. *Journal of the American Dietetic Association 103*(2), 208-214.

Byrne, D. M. (2009). Cloned meat, voluntary food labeling, and organic Oreos. *Pierce Law Review, 8*(1), 31-72.

Caswell, J. A. (1998). How labeling of safety and process attributes affects markets for food. *Agricultural and Resource Economics Review, 27*(2), 151-158.

Caswell, J. A., & Mojduszka, E. M. (1996). Using informational labeling to influence the market for quality in food products (Vol. NE-165 Working Paper No. 43). Storrs, CT.

Caswell, J. A., & Padberg, D. I. (2002). Toward a More Comprehensive Theory of Food Labels. *American Journal of Agricultural Economics, 74*(2), 460-468.

Center for Science in the Public Interest. (2007). Outbreak alert! Closing the gaps in our federal food safety net. Washington, D.C.

Center for Science in the Public Interest. (2012). Straight talk on genetically engineered foods: answers to frequently asked questions. *Biotechnology Project* Retrieved March 31, 2014, from https://http://www.cspinet.org/biotech/faq.html

Chopra, M., & Darnton-Hill, I. (2004). Tobacco and obesity epidemics: not so different after all? . *British Medical Journal, 328*(7455), 1558-1560.

Chung, D. S. (2008). Interactive features of online newspapers: identifying patterns and predicting use of engaged readers. *Journal of Computer-Mediated Communication, 13*, 658-679.

Coleman, S., & Gotze, J. (2002). Bowling together: Online public engagement in policy deliberation. *Information Policy, 7*(4), 247-252.

Crespi, J., & Marette, S. (2003). *Some economic implications of public labeling*. Paper presented at the Emerging Roles for Food Labels: Inform, Protect, Persuade, Washington, DC, March 20-21.

Cutler, D., Glaeser, E., & Shapiro, J. (2003). Why have Americans become more obese? *NBER Paper no. 9446*: National Bureau of Economic Research.

Davison, J. (2010). GM plants: science, politics, and EC regulations. *Plant Science, 178* (2), 94-98.

Dosman, D. M., Adamowicz, W. L., & Hrudey, S. E. (2007). Socioeconomic detriments of health- and food safety-related risk perceptions. *Risk Analysis, 21*(2), 307-317.

Food and Agriculture Organization of the United Nations. (2011). Energy-smart food for people and climate. Rome, Italy.

Food and Water Watch. Make GMO Labels the Law! Retrieved March 31. 2014, from http://www.foodandwaterwatch.org/food/genetically-engineered-foods/make-ge-labels-the-law/

Frewer, L. J., Howard, C., Hedderley, D., & Shepard, R. (1996). What determines trust in information about food-related risks? Underlying psychological constructs. *Risk Analysis, 16*, 473-486.

Garcia, S., & De Leiva, M. I. (2001). *Global overview of marine fisheries* Paper presented at the FAO-Iceland conference on Responsible Fisheries in the Marine Ecosystem, Reykjavik.

Gaudeul, A., & Peroni, C. (2010). Reciprocal attention and norm of reciprocity in blogging networks. *Economics Bulletin, 30*(3), 2230-2248.

Goodman, R. E., Vieths, S., Sampson, H. A., Hill, D., Ebisawa, M., Taylor, S. L., & van Ree, R. (2008). Allergenicity assessment of genetically modified crops: what makes sense? *Nature Biotechnology, 26*, 73-81.

Gross, T. (2003). Consumer attitudes towards health and food safety. In J. B. Luten, J. Oehlenschlager, J. Oehlenschlager & G. Olafsdottir (Eds.), *Quality of Fish from Catch to*

Consumer: Labeling, Monitoring, & Traceability Wageningen: Wageningen Academic Publishers.

Grunert, K. G. (2002). Current issues in the understanding of consumer food choice. *Trends in Food Science and Technology, 13*(8), 275-285.

Henneberry, S. R., & Armbruster, W. J. (2003). Emerging roles for food labels: inform, protect, persuade. *Journal of Food Distribution Research, 34*(3), 62-69.

Huffman, W. E., Rousu, M., Shogren, J. F., & Tegene, A. (2004). Who do consumers trust for information: the case of genetically modified foods? *American Journal of Agricultural Economics, 86*(5), 1222-1229.

HyperResearch 3.5.2. (2013): ResearchWare, Inc.

Knight, A. J. (2009). Perceptions, knowledge and ethical concerns with GM foods and the GM process. *Public Understanding of Science, 18*, 188-188.

Kruess, A., & Tscharntke, T. (1994). Habitat fragmentation, species loss, and biological control. *Science, 264*(5165), 1581-1584.

Lusk, J. L., Brown, J., Mark, T., Proseku, I., Thompson, R., & Welsh, J. (2006). Consumer behavior, public policy, and Country-of-Origin Labeling *Review of Agricultural Economics, 28*(2), 284-292.

Mutum, D., & Wang, Q. (2010). Consumer Generated Advertising in Blogs. In N. M. Burns, T. Daugherty & M. S. Eastin (Eds.), *Handbook of Research on Digital Media and Advertising: User Generated Content Consumption* (pp. 248-261): IGI Global.

Poortinga, W., & Pidgeon, N. (2005). Trust in regulation: cause or consequence of the acceptability of GM food? *Risk Analysis, 25*, 199-210.

Raab, C., & Grobe, D. (2003). Labeling genetically engineered food: the consumer's right to know? *AgBioForum, 6*(4), 155-161.

Rheingold, H. (Ed.). (2008). *Using participatory media and public voice to encourage civic engagement* (Vol. 97-118). Cambridge, MA: The MIT Press.

Richardson, J. (2009). *Recipe for America: Why Our Food System is Broken and What we can do to Fix it*. Brooklyn, NY: Ig Publishing.

Roe, B., & Teisi, M. F. (2007). Genetically modified food labeling: The impacts of message and messenger on consumer perceptions of labels and products. *Food Policy, 32*, 49-66.

Schultz, T. (2000). Mass media and the concept of interactivity: an exploratory study of online forums and reader email. *Media, Culture, and Society 22*, 205-221.

Smith, A. (2013). Civic engagement in the digital age. In P. Research (Ed.), *Pew Research Internet Project*. Washington, D.C.

StataCorp. (2011). Stata Statistical Software: Release 12. College Station, TX: StataCorp LP.

Strauss, D. M. (2006). The international regulation of genetically modified organisms: importing caution into the U.S. food supply. *Food and Drug Law Journal, 167*(184).

The Nielsen Company. (2011). BlogPulse Retrieved March 31, 2014, from blogpulse.com

Woodly, D. (2008). New competencies in democratic communication? Blogs, agenda setting, and political participation. . *Public Choice, 134*, 109-123.

United States - Certain Country of Origin Labelling (COOL) Requirements (18 November 2011).

Chapter 8: Discussion

8.1 Summary of Findings

Together, the three studies comprising this work explored the framing of COOL and its relevance to public health and environmental aims across three different informational contexts. The first of these studies took a focused approach, examining the application of COOL at the point of purchase. Findings from this investigation illustrate the presentation of COOL to consumers and reveal the potential value of origin labeling to retailers as marketing strategy. The next study expanded the informational context surrounding COOL to the international news media. This investigation explored the framing of COOL in the three sociopolitical contexts, focusing on the role of interest groups in shaping policy aims and objectives against a backdrop of conflict and debate over the legality and utility of the label. Findings from this study demonstrate the public health relevance of COOL to elite stakeholders. The third study comprising this work expanded upon questions regarding stakeholder framing of COOL to explore the extent to which health and environmental issues were called upon by members of the public in advocating for or against mandatory labeling for process attributes. In this work, the framing of advocacy arguments for COOL in blog posts were compared to those for labeling for genetically modified organisms, a similarly contentious policy. Findings from this work demonstrated that the public health significance of COOL extended to labeling for GMO, as advocates drew upon health and safety issues as a means for garnering support for mandatory labeling for process attributes. Together these findings suggest that COOL has significance beyond simply informing consumers as to the origin of their food. Labeling for origin and other process information can serve as a signal of

food safety and quality. In addition, these labels can serve protectionist purposes, limiting free trade. In these diverse roles, COOL has importance to numerous stakeholders as a marketing tool, consumer rights issue, and food safety mechanism. The next section outlines findings from each of these three studies in detail.

Manuscript 1

This study explored the extent to which Baltimore City grocers emphasized country-of-origin and procurement method in their labeling of and advertising for fresh and frozen seafood. While COOL is informational in its intent (USDA 2009), findings from this study demonstrated that retailers may employ origin and procurement information to market seafood by highlighting certain origins and process features over others. These marketing decisions can have important effects on consumer preferences and purchasing trends, thereby influencing public health and environmental functioning relative to seafood production.

While Baltimore City grocery stores were mostly compliant with the requirements of COOL, in-store labels did not typically highlight or otherwise draw attention to seafood origin or procurement. Store advertising, however, often featured wild-caught and domestic products. Using both visual and verbal tools, these attributes were made to signal quality, safety, and environmental sustainability. These findings suggest that grocery retailers may value COOL as a marketing strategy prior to purchase rather than as a decision aid at the point of purchase.

The emphasis on COOL in advertising suggests that retailers view origin and procurement information as relevant selling points, perhaps recognizing the growing desire among U.S. consumers for food labeling (J. L. Brown & Ping, 2003; Knight,

2009), mounting concern over food safety (Foulton, July 27, 2010), and increasing awareness about the environmental impacts of the industrial, globalized food system. Nevertheless, the long-term survival of COOL is not clear. Even while this research was being conducted, U.S. trade partners, Mexico and Canada, challenged COOL through the World Trade Organization (WTO). In November 2011, the WTO ruled against the U.S., claiming the law to be protectionist and in violation of international trade agreements (World Trade Organization, 18 November 2011). For this reason, the remainder of this research focused on examining the extent to which public health and environmental sustainability were framed as relevant policy considerations in discussions of COOL in the traditional and new media in order to shed light the issues shaping the policy relevance of mandatory labeling for origin and other process attributes.

Manuscript 2

This research illustrates the nature of stakeholder debates around COOL as they unfolded in news coverage of the policy. In order to gauge the extent to which framing of COOL policy aims differed by sociopolitical context. A particular focus of this study was the extent to which public health aims were highlighted in media framing of COOL objectives relative to economic or political goals. News articles from the U.S., Mexico, and Canada were chosen for comparison based on their interest in the fate and future of COOL.

Though coverage from each of the three countries in this investigation prioritized the political and trade relevance of COOL, food safety aims were visible in a slight majority of articles. The framing of COOL varied more by stakeholder group than by country. Consumer advocates and representatives of the U.S. government most often

called upon food safety in framing the aims and objectives of mandatory origin labeling. Overall, reporting on COOL identified two roles for COOL in protecting food safety: 1) as a traceability tool and 2) as a safety signal. Across the dataset, food safety objectives were largely positioned relative to outbreaks of food borne illness. Reflecting the framing of COOL as a traceability tool and safety signal, mandatory origin labeling was described either as a means for pinpointing the source of an outbreak or as a way for consumers to identify and avoid foods of risky origin. Even if COOL does little to protect food safety directly, the label may assuage growing uncertainty among consumers about food safety.

Findings from this study suggest that stakeholders view relevance to public health in the aims and objectives of COOL. Indeed, the elite stakeholders cited in news coverage of COOL, including governmental representatives, food industry professionals, and consumer policy advocates, drew upon food safety applications of COOL to argue for its adoption and continued implementation. Given the controversial nature of this policy, and the uncertainty over its form and function following the WTO ruling, the next study in this body of research built upon findings from Manuscript 2 to examine the framing of advocacy arguments for and against COOL among interested members of the public.

Manuscript 3

Both traditional and new media sources can bring attention to contentious issues and frame expectations around potential responses. Where traditional news media may be more apt to reflect the rhetoric of dominant power structures, new media can introduce more diverse arguments and frames into the national discourse. In this study, we explored which issues incite public engagement with mandatory process labeling. Comparing COOL and labeling for GMO, we examined the framing of advocacy arguments in favor

of and in opposition to these policies as they appeared among blog articles and comments on moderate, liberal, and conservative blog sites. Of the two policy initiatives under study, labeling for GMO garnered more attention from bloggers and was also a more salient topic of discussion among commenters compared to COOL.

Advocacy arguments took on three frames: consumer protection, informed choice, and counter arguments to informed choice, the two former used in support of mandatory labeling and the latter in opposition. Both consumer protection and informed choice frames were constructed around the notion that consumers value information about their purchases and desire labeling whether they would "use" the label or not. On the other hand, counter arguments to the informed choice frame described mandatory labeling for process attributes as unscientific and unnecessary. Bloggers' advocacy arguments provided established the readers' expectations for the aims of mandatory labeling policies and the meanings attached to process labels. Readers confirmed and elaborated upon these frames.

Together with the results from Manuscript 2, findings from this investigation add to a growing body of literature on the dual impact of food system concerns on public health is presented in news media coverage (Greiner et al., 2012; Greiner, et al., 2010; Laestadius, et al., 2012). Results from these studies demonstrate the relevance of public health concerns to the development and implementation of COOL and other mandatory process labeling policies. These kinds of questions are important to advancing communication in the field of food systems advocacy and research, as connections between public health, environmental sustainability, and the food system are not always fully addressed by the media (R. Neff, et al., 2008).

8.2 Main Conclusions

All together, findings from this research illustrate the public health relevance of mandatory COOL, and demonstrate the prominence of food regulation in the broader social discourse. In each of the three studies comprising this work, food safety emerged as a prominent frame. Throughout this research, COOL was presented within two roles: as a food safety signal or as a traceability tool. In both functions, COOL was presented as a means for consumers to identify preferred foods and avoid those deemed to be unsafe. Both in labeling as well as in stakeholder discussions of COOL in the traditional and new media, domestic foods were prized over imported alternatives. Among media discussions of COOL, in particular, there was a general distrust of food from foreign sources, as these products were associated with outbreaks of contamination and food borne illness. These findings may reflect a widespread unease with the globalized nature of food production and distribution. Indeed, while the global, industrial food system has resulted in benefits to consumers, the current system also involves considerable risks to human health. Increasing awareness among consumers about the ecological and public health impacts of the current model of food production and transportation, along with a desire to support their domestic economy, have begun to shift consumer desire from the exotic to the local (Giovannucci, et al., 2010).

Beyond food safety, larger food system concerns were largely absent in presentations of COOL across the datasets. In findings from Manuscript 1, environmental relevance of COOL was highlighted in a small minority of advertisements and labels from high-end grocery stores, suggesting that retailers perceive these traits to be of value to their shoppers. In other sources and in media coverage of COOL; however,

connections between the labeling program and potential environmental implications were not discussed. This is notable because COOL may, for instance, influence the ecological impact of food production and procurement by encouraging shoppers to buy domestic products thereby limiting food miles. Food transport is largely based on the availability of inexpensive fossil fuels and is, thus, is a significant source of greenhouse gas emissions and a chief contributor to global climate change (Intergovernmental Panel on Climate Change, 2007; McMichael, et al., 2007; Steinfeld, et al., 2006). However, none of the articles in this dataset discussed the ecological impact of transporting food internationally as part of the globalized food system. Second, COOL may direct consumers to select products produced through more sustainable methods. Current farming and fishing practices can have a considerable negative ecological impact. The industrial agricultural model involves heavy external inputs in the form of chemical fertilizers, pesticides, and herbicides as well as extensive use of prophylactic antibiotics and technological manipulation of crops and animals, all of which pose a significant threat to local, regional, and even global ecological systems through nonpoint source pollution (Doos, 1994; Engels, et al., 2010; Gleick, 1998; New York Times, 2011), habitat fragmentation (Kruess & Tscharntke, 1994; R. A. Neff, et al., 2011), and species loss (M. A. Garcia & Altieri, 2005; Wolfenbarger & Phifer, 2000) (Jenkins, 2003; Pauly, et al., 2003). The documents examined in this research did not address the potential for COOL to serve as an ecological signal in the same way that they described the label as a signal of safety or quality. This omission has important implications on the functioning of the food system. First, in grocery stores, labeling and advertising at once shapes and reflects consumer wants and values. Second, the media provide an opportunity to discuss and describe

connections between public health, environmental sustainability, and the food system; however these connections are often missed (R. Neff, et al., 2008) in favor of reporting on the political or economic ramifications of labeling or other food policies. In failing to connect COOL to the environmental elements food production and distribution, consumers do not gain the full range of information afforded to them through mandatory COOL.

8.3 Strengths and Limitations

An advantage of this research is its use of qualitative methods. This is the first study to provide an in-depth investigation into the framing of COOL policy objectives. The combination of informational contexts explored in this work - point-of-purchase labeling, traditional print media, and online participatory media - created a comprehensive profile of the messaging and meaning associated with COOL. These strengths, however, must be considered within the context of the limitations of this research. First, the data were limited to printed product labels, news articles, and blog posts. As such, the research questions and methods guiding this work were focused on the observed patterns of framing and coverage of COOL. This research could not assess the underlying motives on the part of retailers, journalists, bloggers, or readers in constructing the messaging and framing around COOL as they did. In addition, our data did not assess consumer or audience interpretations of these documents. Finally, while this research included several forms of media, the studies comprising this work did not address presentations of mandatory origin labeling in radio, television, or other online media sources.

8.4 Future Research

Together, the three studies comprising this work considered a range of informational contexts in which the public may encounter COOL or messaging about COOL. Future research may build upon findings from this work to explore public perceptions of origin labeling and the utility of this policy as a decision aid and food safety tool. First, media framing of COOL may influence if and to what extent consumers value COOL information. Future studies may assess the extent to which media framing of the policy is reflected in consumers' use of the label, the meaning they ascribe to COOL, and attitudes toward mandatory origin labeling. Second, future studies may evaluate the utility of COOL as a point-of-purchase decision aid by examining which product features shoppers consider in making their selections and to what extent COOL information is thought to be relevant to purchasing decisions.

8.5 Policy Implications

Findings from this research have important implications for the development and refinement of existing labeling laws and trade regulations, as well as to the formation of new mandatory labeling schemes. First, prior to this research, little was known about the perceived public health relevance of COOL. Findings from this research reveal the nature of risk and other health-related information conveyed through COOL. These issues may then be relevant to clarifying COOL policy aims to include the functions of origin labeling as a safety signal and traceability tool. By specifying the aims of COOL, the policy may be more secure and less vulnerable to conflict by limiting contestation and attempts at reframing the law by its opponents.

Second, the future of COOL remains unclear following contestation of the law through the World Trade Organization (WTO). Findings from this research may provide grounds for reworking the terms of international trade agreements. WTO rules based around the General Agreement on Tariffs and Trade (GATT) cover trade services, intellectual property, trade disputes, and policy reviews. Clauses in the agreements allow governments to take actions to protect human, animal, or plant life; however, any actions taken must be based on scientific evidence or internationally recognized standards but cannot involve protection of domestic producers (Iosling, et al., 2004). Similarly, labeling laws at the federal level require that there be a substantial and demonstrable difference between foods bearing the label and those that do not (Byrne, 2009). According to the results of this research, current labeling requirements, both at the international and national levels, fail to meet consumer demands and desires for information about their purchases. In turn, it may be most just for the U.S. government to amend its agreements and standards to meet the needs of its citizens.

Lastly, findings from this research may have implications beyond COOL to shaping labeling requirements for process attributes more broadly. Results from this research may bolster advocacy efforts aimed at improving food labeling by shedding light on the dominant arguments made in support of such laws. For instance, findings from the first study comprising this work suggest that COOL may yield economic benefits for retailers while manuscripts 2 and 3 demonstrate consumer interest in COOL. In all, these findings suggest adoption of mandatory labeling for process attributes may yield benefits for a variety of stakeholders.

References

Brown, J. L., & Ping, Y. (2003). Consumer pereption of risk associated with eating genetically engineered soybeans is less in the presence of a perceived consumer benefit. *Journal of the American Dietetic Association 103*(2), 208-214.

Byrne, D. M. (2009). Cloned meat, voluntary food labeling, and organic Oreos. *Pierce Law Review, 8*(1), 31-72.

Doos, B. R. (1994). Environmental degredation, global food production, and risk for large-scale migrations. *Ambio, 23*(2), 124-130.

Engels, S. V., Hansmann, R., & Sholz, R. W. (2010). Toward a sustainability label for food products: An analysis of experts' and consumers' acceptance. *Ecology of Food and Nutrition 49*(1), 30-60.

Foulton, A. (July 27, 2010). Most Americans Worry about Safety of Food Supply, *National Public Radio*. Retrieved from http://www.npr.org/blogs/health/2011/06/07/128794927/most-americans-worry-about-safety-of-food-supply

Garcia, M. A., & Altieri, M. A. (2005). Transgenic crops: implications for biodiversity and sustainable agriculture. *Bulletin of Science and Technology Society, 25*(4), 335-353.

Giovannucci, D., Barham, E., & Pirog, R. (2010). Defining and marketing "local" foods: geographical indications for US products. *The Journal of World Intellectual Property, 13*(2), 94-120.

Gleick, P. H. (1998). Water in crisis. *Ecological Applications, 8*(3), 571-579.

Greiner, A., Lagasse, L. P., Neff, R. A., Love, D. C., Chase, R., Sokol, N., & Smith, K. C. (2012). Reassuring or risky? The presentation of seafood safety in the aftermath of the Deepwater Horizon Oil Spill. *(in preparation)*.

Greiner, A., Smith, K. C., & Guallar, E. (2010). Something fishy? News media presentation of complex health issues related to fish consumption guidelines. *Public Health Nutrition 13*(11), 1786-1794.

Intergovernmental Panel on Climate Change. (2007). Climate Change 2007: Synthesis Report. New York, NY.

Iosling, T., Roberts, D., & Orden, D. (2004). Food Regulation and Trade: Toward a Safe and Open Global System. Washington, D.C.: Institute for International Economics.

Jurenas, R., & Greene, J. L. (2013). *Country-of-Origin Labeling for Foods and the WTO Trade Dispute on Meat Labeling*. Washington, D.C.

Kruess, A., & Tscharntke, T. (1994). Habitat fragmentation, species loss, and biological control. *Science, 264*(5165), 1581-1584.

Laestadius, L. I., Lagasse, L. P., Smith, K. C., & Neff, R. A. (2012). Print news coverage of the 2010 Iowa egg recall: Addressing bad eggs and poor oversight. *(Under review at Food Policy)*.

McMichael, A. J., Powles, J. W., Butler, C. D., & Uauy, R. (2007). Food, food production, energy, climate change, and health. *Lancet, 370*(Series on Energy and Healthy, #5), 55-65.

Neff, R., Chan, I. L., & Smith, K. C. (2008). Yesterday's dinner, tomorrow's weather, today's news? US newspaper coverage of food system contributions to climate change. *Public Health Nutrition*.

Neff, R. A., Parker, C. L., Kirshenmann, F. L., Tinch, J., & Lawrence, R. S. (2011). Peak oil, food systems, and public health. *American Journal of Public Health, 101*(9), 1587-1597.

New York Times. (2011). Japan Nuclear Crisis *Times Topics: Japan*.

Steinfeld, H., Gerber, P., Wassenaar, T., Castel, V., Rosales, M., & Haan, C. (2006). Livestock's Long Shadow: Environmental Issues and Options. *Rome, FAO*.

United States Department of Agriculture. (2009). Mandatory County of Origin Labeling of Beef, Pork, Lamb, Chicken, Goat Meat, Wild and Farm-Raised Fish and Shellfish, Perishable Agricultural Commodities, Peanuts, Pecans, Ginseng, and Macadamia Nuts; Final Rule *Federal Register* (Vol. 7). Washington, D.C.: National Archives and Records Administration.

United States Food and Drug Administration. (2009). Retrieved November 29, 2009, from http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/default.htm

Wolfenbarger, L. L., & Phifer, P. R. (2000). The ecological risks and benefits of genetically engineered plants. *Science, 290*(5499), 2088-2093.

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- Lead bi-weekly review sessions, primary resource for student questions about course material, consulted with students on assignments, responsible for grading and student evaluations.

Teaching Assistant / Spring 2009, 2010
Health Communication Programs (Graduate). Johns Hopkins Bloomberg School of Public Health

- 35 students
- Held weekly consultations with students groups on program design, management, and evaluation, delivered lecture on program evaluation, assisted with exam preparation, responsible for grading and student evaluations, managed course website.

Teaching Assistant / Fall 2005, 2006
SPSS Biostatics Lab (Post-graduate). Children's Hospital Boston

- 10 students
- Held weekly office hours to consult with medical fellows about using SPSS for individual research needs.

PROFESSIONAL EXPERIENCE

Researcher/Research Assistant / Jan 2009-Aug 2012
Johns Hopkins Center for a Livable Future, Baltimore, MD

- **Sustainability in the News**: Developed data collection tools and coding documents and conducted analysis for research illustrating the nature of risk communication in the national news media relevant to public health concerns following environmental crises.
- **Balanced Menus Challenge:** Devised a data collection instrument, conducted interviews, and lead analysis for an evaluation of a hospital-based climate change reduction initiative.

Researcher/Research Assistant / Jan 2008-Aug 2012
Johns Hopkins Bloomberg School of Public Health, Dept. of Health, Behavior, and Society, Baltimore, MD

- **Risk Communication in the Wake of an Epidemic:** Lead a content analysis study exploring the literacy level and readability of CDC guidance documents on H1N1 influenza. Analyzed textual data and contributed scientific writing for a study of risk communication in the international news media following H1N1 influenza outbreak.
- **Routine HIV Screening for Adolescents:** Responsible for clinic-based recruitment of adolescent participants to take part in a mixed methods study examining how routine HIV testing is implemented in a general adolescent medicine clinic and how routine HIV testing is perceived by adolescent patients.

Programming Assistant / Jun 2010-Jan 2011
Johns Hopkins University Center for Communication Programs, Asia Division, Baltimore, MD

- **Environmental Communication:** Provided text for and edited documents aimed at addressing conservation, aquatic health, and climate change in Indonesia.
- **Crisis Communication:** Contributed to outreach plans for public health staff responding to extensive flooding in Pakistan in July 2010.
- **Science Writing:** Translated study findings for fact sheets about family planning and neonatal health for use in Urban Health Initiative programming across India.
- **Program Evaluation:** Consulted with managers of the Pakistan Initiative for Mothers and Newborns program about quantitative and qualitative evaluation methods for assessing intervention impacts.

Health Communications Fellow / Jul 2008-Jan 2009
National Cancer Institute, Division of Cancer Epidemiology and Genetics, Rockville, MD

- **Media Training and Outreach:** Developed a communication plan guiding dissemination of study results to the press, acted as a liaison between scientists and members of the press, and conducted media training.
- **Congressional Testimony Workshop:** Assisted in preparing scientists for testimony to Congress.
- **Science Writing:** Contributing writer and assistant editor for Division newsletter, *Linkage.*

Research Assistant / Jun 2004-Jun 2007
Children's Hospital Boston, Division of Adolescent and Young Adult Medicine, Boston, MA

- **Grant Writing and Management:** Assisted with NIH grant writing and preparation as well as budget management for multiple principal investigators.
- **Adolescent Health Research:** Conducted literature searches, performed data analysis, lead focus groups, conducted interviews, and contributed scientific writing for publications of studies related to nutrition and physical activity, sexual minority health, youth violence, and the impact of the built environment on health and wellbeing.
- **Health Education:** Created educational activities and lead workshops designed to promote healthy eating and physical activity among high-school aged youth.

Research Intern / Sept 2003-May 2004
Dana Farber Cancer Institute, Medical Oncology and Population Sciences, Boston, MA

- **Psychological Impacts of Cancer:** Performed medical record reviews, conducted interviews, analyzed data, contributed to scientific publications of studies exploring psychosocial distress during stem cell transplantation.

Research and Clinical Intern / Jan 2003-Nov 2003
Mutualité Generale de L'Education Nationale, Paris, France

- **Needs Assessment and Lesson Planning:** Acted as a liaison between investigators and school staff, assisted with survey design, and conducted interviews with high school principals as part of a needs-assessment of six urban high schools in preparation for nutrition education programs.
- **Health Education:** Designed lesson plans for, organized, and led group discussion sessions for newly-diagnosed diabetic patients, focusing on coping with diagnosis and making and maintaining lifestyle changes.

HONORS AND AWARDS

Center for a Livable Future Lerner Fellowship / 2010-2013

- Tuition and research support (awarded annually)
- Total award over three years: $97,061

American Public Health Association, Environmental Section Fellow / 2010

- Conference attendance award
- Award amount: $850

Psi Chi International Honor Society in Psychology / 2003

- Academic recognition

ACADEMIC SERVICE

Founding Member: Social Science and Sustainability Working Group / 2011-2013

General Member: Green Student Group / 2011-2013

Co-Chair: Dept. of Health, Behavior, and Society Student Organization / 2010-2011

Journal Club Coordinator: Center for a Livable Future Fellows' Journal Club / 2010-2011

Abstract Reviewer: American Public Health Association, Health Education and Health Promotion Section / 2011

MEMBERSHIPS

Student Member: American Public Health Association / 2006-2013
Environment; Food and Environment Working Group; Health Education and Health Promotion

COMMUNITY ENGAGEMENT

Team Organizer: Urbanite 2012 Healthy Food Challenge, Baltimore, MD / 2012

- Collaborated on the design of an innovative, citywide intervention to improve access to healthy foods among residents of Baltimore City food desserts for entry in *Urbanite* magazine's Healthy Food Challenge.

Interviewer: Market Umbrella, Baltimore, MD / 2012

- Conducted interviews with farmers' market vendors and patrons to establish economic impact of urban farmers' markets in Baltimore.

Gardener: Rose Street Community Garden, Baltimore, MD / 2011

- Assisted with garden planning, planting, and maintenance. Garden harvest was distributed to the Amazing Grace Community Food Pantry as well as the Cristo Rey Jesuit High School.

Consultant: Southwest Baltimore Women's Food Cooperative, Baltimore, MD / 2010

- Worked with community members to create education materials promoting healthy eating on a budget.

Tutor: Rose Street Tutoring, Baltimore, MD / 2007-2009

- Participated in weekly group tutoring sessions with elementary and middle school students in Baltimore. Sessions focused on homework completion and scholastic enrichment.

Human Rights Committee Member: Bay Cove Center, Boston, MA / 2005-2007

- Conducted monthly site visits to residential and day programs for individuals with mental illness. Visits included interviews with clients and staff as well as facilities inspections.

Tutor: East Boston Health Center, Boston, MA / 2000-2004

- Met individually with middle school students for weekly tutoring sessions. Sessions included assistance with homework, problem solving, and conflict resolution.

PEER REVIEWED PUBLICATIONS

- **Lagasse LP**, Love DC, Smith KC. County of Origin Labeling for seafood: An exploration of the information environment in Baltimore City grocery stores. Ecology of Food and Nutrition 2014; 53: 58-80.
- Greiner A, **Lagasse LP**, Neff R, Love DC, Chase R, Sokol N, Smith KC. Reassuring or risky? The presentation of seafood safety in the aftermath of the British Petroleum Deepwater Horizon Oil Spill. American Journal of Public Health 2013; 103 (7): 1198-1206.
- Laestadius LI, **Lagasse LP**, Smith KC, Neff RA. Print news coverage of the 2010 Iowa egg recall: Addressing bad eggs and poor oversight. Food Policy 2012; 37: 751-59.

- Smith KC, Rimal RN, Sandberg H, Storey JD, **Lagasse L,** Maulsby C, Rhoades E, Barnett DJ, Omer SB, Links JM. Understanding newsworthiness of an emerging pandemic: International newspaper coverage of the H1N1 outbreak. Influenza and Other Respiratory Viruses 2012; DOI: 10-1111/irv.12073.
- **Lagasse LP**, Rimal RN, Smith KC, Storey JD, Rhoades ER, Barnett D, Omer SB, Links J. How accessible was information about H1N1 Flu? Literacy assessments of CDC Guidance Documents for different audiences? Public Library of Science 2011; 6(10): e23583.
- Wylie S. Corliss H, Boulanger V, **Prokop LA**, Austin SB. Socially assigned gender nonconformity: A brief measure for use in surveillance and investigation of health disparities. Sex Roles 2010; 63 (3): 264-76.
- Austin SB, Ziyadeh NJ, Forman S, **Prokop LA**, Keliher A, Jacobs D. Screening High School Students for Eating Disorders: Results of a National Initiative. Preventing Chronic Disease (serial online) 2008; 5 (4).
- Austin SB, Ziyadeh NJ, Vohra S, Forman S, Gordon CM, **Prokop LA**, Keliher A, Jacobs D. Irregular menses linked to vomiting in a nonclinical sample: findings from the National Eating Disorders Screening Program in High Schools. Journal of Adolescent Health 2008; 42 (5): 450-7.
- Ziyadeh N, **Prokop LA**, Fisher LB, Rosario M, Field AE, Camargo CA Jr., Austin SB. Sexual Orientation, Gender, and Alcohol Use in a Cohort Study of U.S. Adolescent Girls and Boys. Drug and Alcohol Dependence 2006; 87: 119-130.
- Bauer KW, Patel A, **Prokop LA**, Austin SB. "Swimming upstream": faculty and staff in low-resource, urban middle schools describe their experiences working on nutrition and physical activity initiatives. Preventing Chronic Disease (serial online) 2006; 3(2).
- Lee SJ, Loberiza FR, Antin JH, Kirkpatrick **T, Prokop L**, et al. Routine screening for psychosocial distress following hematopoietic stem cell transplantation. Bone Marrow Transplantation 2005; 35: 77-83.

PUBLISHED REPORTS

- **Lagasse LP**, Neff R. Balanced Menus: A pilot evaluation of implementation in four Bay Area hospitals. Johns Hopkins Center for a Livable Future 2010.

SCIENTIFIC PRESENTATIONS

- **Lagasse LP**, Neff RA. Balanced Menus: A pilot evaluation of implementation in four Bay Area hospitals. Presented at the Association of Climate Change Officers Climate Change Leadership Series – Healthy Hospitals: Changing Climate in Healthcare Facilities and Insitutions. Washington, D.C., June 2011.
- **Lagasse LP**, Love DC, Smith KC. County of Origin Labeling for seafood: An exploration of the information environment in Baltimore City grocery stores. Presented at the American Public Health Association annual meeting, Washington, D.C., November 2011. (Poster)

- **Lagasse LP**, Rimal RN, Smith KC, Storey JD, Rhoades ER, Barnett D, Omer SB, Links J. How accessible was information about H1N1 flu? Literacy assessments of guidance documents for different audiences. Presented at the American Public Health Association annual meeting, Philadelphia, PA, November 2009.
- **Prokop LA**, Harris SK, Shrier LA, Austin SB. What are the health risks associated with adolescent bullying? Are bully-victims at particular risk? Presented at the American Public Health Association annual meeting, Washington D.C., November 2007.